DARSHAN ACADEMY
Subject Enrichment Assignments - 2025
CLASS: ─ XII   SUBJECT: INFORMATICS PRACTICE

General Instructions:

- Submit your assignments in a neatly arranged file with a cover page and table of contents.
- Use A4 sheets and ensure that your handwriting or print is clear and legible.
- Make your work attractive by adding pictures, drawings, or simple borders.
- Complete the work on time and submit it on the first day after the summer vacation.

WORKSHEET-1

1) Create the above series M1 with default index and with the given
index. Marks
Term1 45
Term2 65
Term3 24
Term4 89

2) Create the following series Employee with defaul indices.
Salary
1700
1230
2250
1900

3) Find the output of the following code segment:
```
>>> import pandas as pd
>>> import numpy as np
>>> ARR1=np.arange(61,80,5)
>>> SER1=pd.Series(ARR1)
>>> print(SER1)
```

4) Find the output of the following code fragment:
```
>>> A2=np.arange(10,30,7)
>>> SER2=pd.Series([200,500,750],index=A2)
>>> print(SER2)
```

5) Find the output of the following code fragment:
```
>>> Ser3=pd.Series([8,12,25,30,40,55], index=['P1','P2','P3','P4','P5','P6'])
>>> print(Ser3)
```

WORKSHEET-2

1. Create the following data frame IntExamDF

a) Using Dictionary of Series

b) Using Dictionary of Lists.

Name		Eng	Maths	IP
0	Anisha	66	85	95
1	Bharat	68	82	82
2	Chandru	75	84	63
3	Dharmik	74	80	84
4	Esther	70	75	90
5	Meera	76	80	84

2. _____ statement is used to fetch the column names from IntExamDF.

3. _____ statement is used to fetch the data type values of the items in IntExamDF.

4. _____ statement gives the size of IntExamDF. i.e., No. rows and columns.

5. _____ statement helps to transpose IntExamDF. i.e., rows become columns and columns become rows.

WORKSHEET-3

1) _____ is used to sort series in ascending order

2) _____ is used to sort series in descending order

3) _____ is used to change the name of series.

4) _____ is used to give the name for index in series

5) _____ is used to check whether the series is empty or not.

6) _____ is used to display the no. of elements in a series.

7) _____ is used to display all the indexes of a series.

8) _____ is used to display all the values of a series.

9) _____ is used to create a series with empty (No elements)

10) Find the output of the following statement:

>>> Ser5=pd.Series()

WORKSHEET-4

Create following Series and answer the following questions

Ser3=pd.Series([8,12,25,30,40,55], index=['P1','P2','P3','P4','P5','P6'])

1) _____ is used to display all the elements between P2 to P5 of the series Ser3.

2) Give output of the following statement:

>>>Ser3.loc['P1':'P3']

3) Find output of the following statement:

>>>Ser3.iloc[2:4]

4) Write the statement to create the following series S1.

S1

A   30

B   30

C   30

WORKSHEET-5

1) Write the statement to create the following series S1.

S1

A   30

B   30

C   30

2) Find output of the following statement:

>>> S2=pd.Series([150],index=['A','B','C'])

3) Consider the following series Ser2 and Ser3.

>>> Ser2=pd.Series([25,20,35,55])

>>> Ser3=pd.Series([15,40,45,25])

4) What will be the output of the following statement:

>>> print(Ser2+Ser3)

>>> print(Ser2-Ser3)

5) Consider the following series names Ser4 and Ser5;

>>> Ser4=pd.Series([25,30,45,60])

>>> Ser5=pd.Series([5,2,3])

>>> print(Ser4*Ser5)

WORKSHEET-6

1) What will be the output of the following statement with the series S7?

s1   18

s2   25

s3   34

s4   12

s5   20

>>>print(S7-10)

2) Consider the following series to give the output of the following

SER6

0 10.0

1 NaN

2 40.0

3 NaN

>>>print(SER6.mul(SER6,fill_value=10))

3) Write python program to create the series given below.

DataSer:

D1 28

D2 37

D3 16

D4 27

D5 80

D6 54

4) What will be the output of the following statements?

i) DataSer.head()   ii) DataSer.head(3)   iii) DataSer.tail(2)

5) What will be the output of the following statements?

>>>print(DataSer < 30)

>>>print(DataSer [DataSer<40])

6) Write a statement to add a new element 24 at index 'D7' and to remove the element at index 'D5'.

WORKSHEET-7

1) Given the following details of books in a library.

BCode	Title	Author		Price
Book1	5478	Software Engineering	Patrick	1800
Book2	7382	System Analysis and Design	Mathews	650
Book3	4884	Data Analysis	Gilbert	1550

Book4	4727	Business Computing	Viveka	820
Book5	1683	Compiler Design	Dan	1230
Book6	9280	Simulation and Modeling	Sudev	700

i) Create the above data frame LibraryDF using:

 a) Dictionary of Series　　　　　　　b) Dictionary of Lists.

ii) Write python statement to perform the following:

 a) _____ statement is used to fetch the row index names from LibraryDF.

 b) _____ statement is used to fetch the column names from LibraryDF.

c) _____ statement is used to fetch the data type values of the items in LibraryDF.

d) _____ statement gives the size of LibraryDF. i.e., No. rows and columns.

e) _____ statement is used to fetch the size of LibraryDF.

f) _____ statement is used to fetch the dimension of the LibraryDF.

g) _____ statement helps to transpose LibraryDF. i.e., rows become columns and columns

becomes rows.

 h) _____ statement is used to check whether LibraryDF is empty of not.

WORKSHEET-8

1) consider the following details of books in a library.

BCode	Title	Author		Price
Book1	5478	Software Engineering	Patrick	1800
Book2	7382	System Analysis and Design	Mathews	650
Book3	4884	Data Analysis	Gilbert	1550
Book4	4727	Business Computing	Viveka	820
Book5	1683	Compiler Design	Dan	1230
Book6	9280	Simulation and Modeling	Sudev	700

1. Perform the following operations based on above data frame LibraryDF.

a) Write a statement to display the first and last 2 rows from LibraryDF.

b) Write a statement to display the first and last 5 rows from LibraryDF.

c) Write a statement to display all the values under Title column.

d) Write a statement to display all the values under Author column.

e) Write a statement to display the values under Title from row index Book1 to Book3.

WORKSHEET-9

1. Perform the following operations based on above data frame LibraryDF given in WORKSHEET -8.

a) Write a statement to display the values Price column of rows Book2 and Book4.

b) Write a statement to display all the row values of Title and Price columns.

c) Write a statement to display all the row values of BCode to Author columns.

d) Write a statement to display the values of row indexes Book3 and Book5 and column names BCode and Price.

e) Write a statement to display the values of row indexes from Book2 to Book5 and column names from Title to Price.

WORKSHEET-10

1. Perform the following operations based on above data frame LibraryDF given in WORKSHEET -8.

a) Write a statement to add new column "publisher" in the dataframe.

b) Write a statement to add new row with related values in the dataframe.

c) Write a statement to delete columns from BCode to Author columns.

i) Write a statement to delete the values of row indexes Book3 and Book5.

j) Write the output of following statement.

   LibraryDF ['Price'] >1000

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CHAPTER 1 – FUNDAMENTAL OF ACCOUNTING

ASSIGNMENT 1 – MCQ QUESTIONS

1   If the partnership deed is silent interest on drawings will be charged @
(A) 6% P.a   (B) 6% P.m   (C) Any other Rate   (D) Will not be charged

2   Which is not the clause of the Partnership Deed?
(A) Business can be carried on by all or any of the partner's acting for all. (B) Commencement of business. (C) Rights & Duties of Partner. (D) None of the above

3.   The Net profits of Kamini were Rs. 20,000. Gulafsa the manager was to be given the commission of Rs 6,000; the distribution of profits will be done as:
(A) Rs. 10,000 to each. (B) Rs. 7,000 to each. (C) Rs. 13,000 to each. (D) None of the above

4.   Shalu, Shan& Julie are partners sharing profits in the ratio of 6 : 4 : 1. Julie is guaranteed a minimum profit of Rs. 20,000. The firm incurred a loss of Rs. 2,20,000 for the year ended 31st March, 2021. What amount of deficiency will be borne by Shaluand Shan.
(A) Rs. 10,000 each. (B) Rs. 20,000 each. (C) Rs. 24,000 by Shalu& Rs. 16,000 by Shan. (D) Rs. 12,000 by Shalu& Rs. 8,000 by Shan.

5   Om & Prakash were partner's without any deed where Prakash invested the total capital and Om had the complete hold on the business as Prakash was the sleeping partner, but as Prakash invested complete capital demanded to share the profits in the Ratio of 5 : 1 and Om object's to this.
(A) Om's objection is correct. (B) Prakash's demand is correct. (C) Both are wrong. (D) As investment is of Prakash he should be given interest on capital.

6.   Following are essential elements of a partnership firm except:

(A) At least two persons. (B) There is an agreement between all partners. (C) Equal share of profits and losses. (D) Partnership agreement is for some business.

7. Which of the following items is not dealt through Profit and Loss Appropriation Account? (A)Interest on Partner's Loan (B) Partner's Salary (C)Interest on Partner's Capital (D)Partner's Commission

8. A partner withdrew Rs. 4,000 per month from 1st July, 2016, on beginning of every month. Accounts are closed at 31st March, 2017. Calculate interest on drawings while rate of interest is 10% per annum. (A) Rs. 1,600 (B) Rs. 1,800 (C) Rs. 1,500 (D)2200

CHAPTER 1 – FUNDAMENTAL OF ACCOUNTING

ASSIGNMENT 2– MCQ QUESTIONS

1. A, B and C sharing profits in the ratio of 2: 2: 1 have fixed capitals of Rs. 3,00,000, Rs. 2,00,000 and Rs. 1,00,000 respectively. After closing the accounts for the year ending 31st March 2019 it was discovered that interest on capitals was provided @12% instead of 10% p.a. In the adjusting entry:
(A) Cr. A Rs. 1,200; Dr. B Rs. 800 and Dr. C Rs. 400
(B) Dr. A Rs. 1,200; Cr. B Rs. 800 and Cr. C Rs. 400
(C) Cr. A Rs. 800; Cr. B Rs. 400 and Dr. C Rs. 1,200
(D) Dr. A Rs. 800; Dr. B Rs. 400 and Cr. C Rs. 1,200

2. A partner withdraws Rs.8,000 each on 1st April and 1st Oct. Interest on his drawings @ 6% p.a. on 31st March will be: (A) Rs. 480 (B) Rs.720 (C) Rs. 240 (D) Rs. 960

3. Rani and Shyam is partner in a firm. They are entitled to interest on their capital but the net profit was not sufficient for paying his interest, then the net profit will be disturbed among partner in a. 1:2 b. profit sharing ratio c. capital ratio d. equally

4. Which one of the following items is recorded in the Profit and Loss appropriation account
a. Interest on loan b. Partner Salary c. Rent paid to Partner d. Managers commission

5. Salary to a partner under fixed capital account is credited to
a. Partner's Capital A/c b. Partner's current A/c c. Profit & Loss A/c d. Partner's Loan A/c

6. In the absence of partnership deed partner share profit and loss in
a). Ratio of Capital Employed b). Equal ratio c). 2:1 d). 1:2

7. A, B, and C are partner's sharing profits in the ratio of 5:3:2According to the partnership agreement C is to get a minimum amount of Rs. 10,000 as his share of profits every year. The net profit for the year ended 31st March, 2019 amounted to Rs. 40,000. How much amount contributed by A? a. Rs. 1.350 b. Rs . 1,250 c. Rs. 750 d. Rs. 1,225

8. The relation of the partner with the firm is that of

a). An owner   b). An agent and A Principal c). An agent   d). Manager

9   If the partner carries on the business that is similar to firm competition with the firm and profit earned from it, the profit a. Shall be retained by the partner b. Shall be paid to firm c. Can be retained or gained to the firm d. Both (A) and (B)

10   Closing entry for interest on loan allowed to partners
       a. Interest on partner's loan …Dr. To Profit and Loss A/c
       b. Interest on loan …Dr. To Profit and Loss Appropriation A/c
       c. Profit and Loss Appropriation A/c …Dr. To interest on partner's loan A/c
       d. Profit and Loss Appropriation A/c …Dr. To interest on loan A/c

CHAPTER 1 – FUNDAMENTAL OF ACCOUNTING

ASSIGNMENT 3– PRACTICAL PROBLEMS

1. A and B are partners sharing Profit and Loss in the ratio of 3 : 2 having Capital Account balances of Rs. 50,000 and Rs. 40,000 on 1st April, 2018. On 1st July, 2018, A introduced Rs. 10,000 as his additional capital whereas B introduced only Rs. 1,000. Interest on capital is allowed to partners @ 10% p.a. Calculate interest on capital for the financial year ended 31st March, 2019.

2. Ram and Mohan are partners in a business. Their capitals at the end of the year were Rs. 24,000 and Rs. 18,000 respectively. During the year, Ram's drawings and Mohan's drawings were Rs. 4,000 and Rs. 6,000 respectively. Profit (before charging interest on capital) during the year was Rs. 16,000. Calculate interest on capital @ 5% p.a. for the year ended 31st March, 2019.

3. Pranshu and Himanshu are partners sharing profits and losses in the ratio of 3 : 2 respectively. They admit Anshu as partner with 1/6 share in the profits of the firm. Pranshu personally guaranteed that Anshu's share of profit would not be less than Rs. 30,000 in any year. The net profit of the firm for the year ending 31st March, 2013 was Rs. 90,000. Prepare Profit & Loss Appropriation Account.

4. Ankur and Bobby were into the business of providing software solutions in India. They were sharing profits and losses in the ratio 3 : 2. They admitted Rohit for a 1/5 share in the firm. Rohit, an alumni of IIT, Chennai would help them to expand their business to various South African countries where he had been working earlier. Rohit is guaranteed a minimum profit of Rs. 2,00,000 for the year. Any deficiency in Rohit's share is to be borne by Ankur and Bobby in the ratio 4 : 1. Loss for the year was Rs. 10,00,000. Pass the necessary Journal entries.

5. Anita, Bimla and Cherry are three partners. On 1st April, 2019, their Capitals stood as: Anita Rs. 1,00,000, Bimla Rs. 2,00,000 and Cherry Rs. 3,00,000. It was decided that: (a) they would receive interest on Capitals @ 5% p.a., (b) Anita would get a salary of Rs. 5,000 per month, (c) Bimla would receive commission @ 5% of net profit after deduction of commission, and (d) 10% of the divisible profit would be transferred to the General Reserve. Before the above items were taken into account, the profit for the year ended 31st March, 2020 was Rs. 5,00,000. Prepare Profit & Loss Appropriation Account and the Capital Accounts of the Partners

CHAPTER 1 – FUNDAMENTAL OF ACCOUNTING

ASSIGNMENT 4– PRACTICAL PROBLEMS

1) A, B and C were partners. Their capitals were A—Rs. 30,000; B—Rs. 20,000 and C—Rs. 10,000 respectively. According to the Partnership Deed, they were entitled to an interest on capital @ 5% p.a. In addition, B was also entitled to draw a salary of Rs. 500 per month. C was entitled to a commission of 5% on the profits after charging the interest on capital, but before charging the salary payable to B. The net profit for the year were Rs. 30,000 distributed in the ratio of capitals without providing for any of the above adjustments. The profits were to be shared in the ratio of 5 : 3 : 2. Pass necessary adjustment entry showing the workings clearly.

2) Gian, Rajat and Bishan are partners sharing profits equally. Gian drew regularly Rs. 10,000 in the beginning of every month for six months ended 30th September, 2019. Rajat drew regularly Rs. 10,000 at the end of every month for six months ended 30th September, 2019. Bishan drew regularly Rs. 10,000 in the middle of every month for six months ended 30th September, 2019. Calculate interest on drawings @ 5% p.a. for the year ended 31st March, 2020.

3) Prem and Manoj are partners in a firm sharing profits in the ratio of 3 : 2. The Partnership Deed provided that Prem was to be paid salary of Rs. 2,500 per month and Manoj was to get a commission of Rs. 10,000 per year. Interest on capital was to be allowed @ 5% p.a. and interest on drawings was to be charged @ 6% p.a. Interest on Prem's drawings was Rs. 1,250 and on Manoj's drawings was Rs. 425. Interest on Capitals of the partners were Rs. 10,000 and Rs. 7,500 respectively. The firm's net profit for the year ended 31st March, 2020 was Rs. 90,575. Prepare Profit & Loss Appropriation Account of the firm.

4) Kanika and Gautam are partners doing a dry cleaning business in Lucknow, sharing profits in the ratio 2 : 1 with capitals Rs. 5,00,000 and Rs. 4,00,000 respectively. Kanika withdrew the following amounts during the year to pay the hostel expenses of her son: 1st April Rs. 10,000 1st June Rs. 9,000 1st November Rs. 14,000 1st December Rs. 5,000 Gautam withdrew Rs. 15,000 on the first day of April, July, October and January to pay rent for the accommodation of his family. He also paid Rs. 20,000 per month as rent for the office of partnership which was in a nearby shopping complex. Calculate interest on drawings @ 6% p.a. (CBSE Sample Paper 2015)

5) C and D are partners in a firm; C has contributed Rs. 1,00,000 and D Rs. 60,000 as capitals. Interest is payable @ 6% p.a. and D is entitled to salary of Rs. 3,000 per month. In the year ended 31st March, 2021, the profit was Rs. 80,000 before interest and salary. Prepare Profit & Loss Appropriation Account.

CHAPTER 2 – GOODWILL VALUATION

ASSIGNMENT 5 – PRACTICAL PROBLEMS

1. Dinesh and Mahesh are partners sharing profits and losses in the ratio of 3 : 2. They admit Ramesh into partnership for 1/4th share in profits. Ramesh brings in his share of goodwill in cash. Goodwill for this

purpose shall be calculated at two years' purchase of the weighted average normal profit of past three years. Weights being assigned to each year 2017–1; 2018–2 and 2019–3. Profits of the last three years were: 2017—Profit Rs. 50,000 (including profits on sale of assets Rs. 5,000). 2018—Loss Rs. 20,000 (including loss by fire Rs. 35,000). 2019—Profit Rs. 70,000 (including insurance claim received Rs. 18,000 and interest on investments and dividend received Rs. 8,000). Calculate the value of goodwill. Also, calculate the goodwill brought in by Ramesh.

2. Manbir and Nimrat are partners and they admit Anahat into partnership. It was agreed to value goodwill at three years' purchase on Weighted Average Profit Method taking profits of last five years. Weights assigned to each year as 1, 2, 3, 4 and 5 respectively to profits for the year ended 31st March, 2015 to 2019. The profits for these years were: Rs. 70,000, Rs. 1,40,000, Rs. 1,00,000, Rs. 1,60,000 and Rs. 1,65,000 respectively. Scrutiny of books of account revealed following information:
(i) There was an abnormal loss of Rs. 20,000 in the year ended 31st March, 2015.
(ii) There was an abnormal gain (profit) of Rs. 30,000 in the year ended 31st March, 2016.
(iii) Closing Stock as on 31st March, 2018 was overvalued by Rs. 10,000. Calculate the value of goodwill.

3. Mahesh and Suresh are partners and they admit Naresh into partnership. They agreed to value goodwill at three years' purchase on Weighted Average Profit Method taking profits for the last five years. They assigned weights from 1 to 5 beginning from the earliest year and onwards. The profits for the last five years were as follows: Year Ended 31st March, 2015 31st March, 2016 31st March, 2017 31st March, 2018 31st March, 2019 Profits (Rs.) 1,25,000 1,40,000 1,20,000 55,000 2,57,000 Scrutiny of books of account revealed the following:
(i) A second-hand machine was purchased for Rs. 5,00,000 on 1st July, 2017 and Rs. 1,00,000 were spent to make it operational. Rs. 1,00,000 were wrongly debited to Repairs Account. Machinery is depreciated @ 20% p.a. on Written Down Value Method.
(ii) Closing Stock as on 31st March, 2018 was undervalued by Rs. 50,000.
(iii) Remuneration to partners was to be considered as charge against profit and remuneration of Rs. 20,000 p.a. for each partner was considered appropriate. Calculate the value of goodwill.

CHAPTER 2 – GOODWILL VALUATION

ASSIGNMENT 6 – PRACTICAL PROBLEMS

1. Calculate the goodwill of a firm on the basis of three years' purchase of the weighted average profit of the last four years. The appropriate weights to be used and profits are: Year 2015–16 2016–17 2017–18 2018–19 Profits (Rs.) 1,01,000 , 1,24,000, 1,00,000, 1,40,000 Weights 1 2 3 4 On a scrutiny of the accounts, the following matters are revealed:
(i) On 1st December, 2017, a major repair was made in respect of the plant incurring Rs. 30,000 which was charged to revenue. The said sum is agreed to be capitalized for goodwill calculation subject to adjustment of depreciation of 10% p.a. on Reducing Balance Method.
(ii) The closing stock for the year 2016–17 was overvalued by Rs. 12,000.

(iii) To cover management cost, an annual charge of Rs. 24,000 should be made for the purpose of goodwill valuation.

(iv) On 1st April, 2016, a machine having a book value of Rs. 10,000 was sold for Rs. 11,000 but the proceeds were wrongly credited to Profit and Loss Account. No effect has been given to rectify the same. Depreciation is charged on machine @ 10% p.a. on reducing balance method.

2. A and B are partners sharing profits and losses in the ratio of 5 : 3. On 1st April, 2019, C is admitted to the partnership for 1/4th share of profits. For this purpose, goodwill is to be valued at two years' purchase of last three years' profits (after allowing partners' remuneration). Profits to be weighted 1 : 2 : 3, the greatest weight being given to last year. Net profit before partners' remuneration were: 2016–17: Rs. 2,00,000; 2017–18: Rs. 2,30,000; 2018–19: Rs. 2,50,000. The remuneration of the partners is estimated to be Rs. 90,000 p.a. Calculate amount of goodwill.

3. A partnership firm earned net profits during the past three years as follows: Year Ended 31st March, 2019 31st March, 2018 31st March, 2017 Net Profit (Rs.) 2,30,000 2,00,000 1,70,000 Capital investment in the firm throughout the above-mentioned period has been Rs. 4,00,000. Having regard to the risk involved, 15% is considered to be a fair return on the capital. The remuneration of the partners during this period is estimated to be Rs. 1,00,000 p.a. Calculate value of goodwill on the basis of two years' purchase of average super profit earned during the above-mentioned three years.

4. Supreet and Subham are equal partners. They decide to admit Akriti for 1/3rd share. For the purpose of admission of Akriti, goodwill of the firm is to be valued at four years' purchase of super profit. Average capital employed in the firm is Rs. 1,50,000. Normal rate of return may be taken as 15% p.a. Average profit of the firm is Rs. 40,000. Calculate value of goodwill.

CHAPTER 2 – GOODWILL VALUATION

ASSIGNMENT 7 – PRACTICAL PROBLEMS

1. A firm earns Rs. 3,00,000 as its annual profit, the rate of return being 12%. Assets and liabilities of the firm amounted to Rs. 36,00,000 and Rs. 12,00,000 respectively. Calculate value of goodwill by Capitalisation Method.

2. Average profits of the firm are Rs. 3,00,000. Total tangible assets in the firm are Rs. 28,00,000 and outside liabilities are Rs. 8,00,000. In the same type of business, the normal rate of return is 10% of the capital employed. Calculate the value of goodwill by Capitalisation of Super Profit Method.

3. Average profit of the firm is Rs. 2,00,000. Total assets of the firm are Rs. 15,00,000 whereas Partners' Capital is Rs. 12,00,000. If normal rate of return in a similar business is 10% of the capital employed, what is the value of goodwill by Capitalisation of Super Profit?

4. Geet and Meet are partners in a firm. They admit Jeet into partnership for equal share. It was agreed that goodwill will be valued at three years' purchase of average profit of last five years. Profits for the last five years were: Year Ended 31st March, 2016 31st March, 2017 31st March, 2018 31st March, 2019 31st March, 2020 Profits (Rs.) 90,000 (Loss) 1,60,000 1,50,000 65,000 1,77,000 Books of Account of the firm revealed that: (i) The firm had gain (profit) of Rs. 50,000 from sale of machinery sold in the year ended 31st March, 2017. The gain (profit) was credited in Profit and Loss Account. (ii) There was an abnormal loss of Rs. 20,000 incurred in the year ended 31st March, 2018 because of a machine becoming obsolete in accident. (iii) Overhauling cost of second hand machinery purchased on 1st July, 2018 amounting to Rs. 1,00,000 was debited to Repairs Account. Depreciation is charged @ 20% p.a. on Written Down Value Method. Calculate the value of goodwill.

5. Rakesh and Ashok earned profit of Rs. 5,000. They employed capital of Rs. 25,000 in the firm. It is expected that the normal rate of return is 15% of the capital. Calculate amount of goodwill if goodwill is valued at three years' purchase of super profit.

6. Capital of the firm of Sharma and Verma is Rs. 2,00,000 and the market rate of interest is 15%. Annual salary to partners is Rs. 12,000 each. The profits for the last three years were Rs. 60,000; Rs. 72,000 and Rs. 84,000. Goodwill is to be valued at 2 years' purchase of last 3 years' average super profit. Calculate goodwill of the firm.

7. From the following information, calculate value of goodwill of the firm by applying Capitalisation Method: Total Capital of the firm Rs. 24,00,000. Normal rate of return 10%. Profit for the year Rs. 3,00,000.

CHAPTER 3 – CHANGE IN PROFIT SHARING RATIO

ASSIGNMENT 8 – MCQ

1   The ratio in which a partner receives a rise in his share of profits is known as: A. New Ratio B. Sacrificing Ratio C. Capital Ratio D. Gaining Ratio

2   Sacrificing ratio is the difference between : A. New ratio and old ratio B. Old ratio and new ratio C. New ratio and gaining ratio D. Old ratio and gaining ratio

3   In case of change in profit-sharing ratio, the accumulated profits are distributed to the partners in A. new ratio B. old ratio C. sacrificing ratio D. equal ratio

4   Ajay,Bijay and Sujay are partners sharing profits and losses in the ratio of 5:3:2.They decide to share the future profits in the ratio of 3:2:1. Workmen compensation reserve appearing in the balance sheet on the date if no information is available for the same will be:
    A. Distributed among the partners in old profit sharing ratio
    B. Distributed among the partners in new profit sharing ratio
    C. Distributed among the partners in capital ratio
    D. Carried forward to new balance sheet without any adjustment

5   Alok and Bhupesh are partners in a firm sharing profits in the ratio of 3 : 2. They decided to share future profits equally. Calculate Alok's gain or sacrifice
A. 2/10 (sacrifice) B. 5/10 (gain) C.1/10 (Gain) D.1/10 (sacrifice)

6   A, B and Care partner sharing profits in the ratio of 2 : 4 : 6. On 1-4-2022 theydecided to share the profits equally. On the date there was a credit balance of Rs.1,20,000 in their Profit and Loss Account and a balance of Rs.1,80,000 in GeneralReserve Account. Instead of closing the General Reserve Account and Profit andLoss Account, it is decided to record an adjustment entry for the same. In thenecessary adjustment entry to give effect to the above arrangement:
A. Dr. A by Rs. 50,000; Cr. B by Rs. 50,000
B. Cr. A by Rs. 50,000; Dr. B by Rs. 50,000
C. Dr. A by Rs. 50,000; Cr. C by Rs. 50,000
D.Cr. A by Rs. 50,000; Dr. C by Rs. 50,000

CHAPTER 3 – CHANGE IN PROFIT SHARING RATIO

ASSIGNMENT 9 – MCQs

1   Which section of Indian Partnership Act, 1932 defines partnership as "Partnership is the relation between persons who have agreed to share the profits of a business carried by all or any of them acting for all." A. Section 4 B. Section 2 C. Section 40 D. Section 42

2   Feature of a partnership firm:
A. Two or more persons are carrying common business under an agreement.
B. They are sharing profits and losses in the fixed ratio.
C. Business is carried by all or any of them acting for all as an agent.
D. All of these

3   Which one from the below is not a right of a partner?
A. Right to inspect the books of accounts
B. Right to take part in the management of the firm
C. Right to share the profit/losses with other partners in agreed ratio
D. Right to receive salary at the end of every year

4   P, Q, and R are partners in 6 : 4 : 2. R is guaranteed that his share of profit will not be less than rs.70,000. Any deficiency will be borne by P and Q in the ratio of 4 : 2. Firm's profit was rs.2,40,000. Share of P will be :
A. Rs.1,00,000 B. Rs.1,10,000 C. Rs.1,20,000 D. Rs.1,02,000

5   Any change in the relationship of existing partners, resulting in the end of existing agreement and formation of new agreement is termed as
 (A)Revaluation of partnership (B)Realisation of partnership (C) Reconstitution of partnership firm (D) Reconstitution of partnership

6   Which of the following is not transferred to partners' capital accoumt? (A) Retained earnings (B) General Reserve (C) Employees Provident Fund (D) Contingency Reserve

7   State the ratio in which the partners share all the accumulated profits, reserves, losses at the time of change in profit sharing ratio. (A) Old profit sharing ratio (B) New profit sharing ratio (C)Sacricing ratio (D) Gaining ratio

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CHAPTER 3 – CHANGE IN PROFIT SHARING RATIO

ASSIGNMENT 10 – MCQ

1   Which of the following statement is correct for Revaluation account?
(A) Increase in the value of an asset is credited to Revaluation account
(B) Increase in the amount of a liability is debited to Revaluation account
(C) Decrease in the value of an asset is credited to Revaluation account

(D) Decrease in the amount of a liability is credited to Revaluation account

2   Sacrificing ratio is calculated as
(A) New ratio – Old ratio   (B) Old ratio – Gaining ratio
(C) Gaining ratio – Old ratio   (D) Old ratio – New ratio

3   Ankita and Neha are sharing profits in the ratio of 2:1. Now they have decided that new profit sharing ratio will be equal. What will be the Gain/Sacrifice ratio?
(A) Ankita gain 1/6 and Neha sacrifice 1/6
(B) Ankita sacrifice 1/6and Neha gain 1/6
(C) Ankita gain 4/5 and Neha sacrifice 4/5
(D)Ankita sacrifice 2/3 and Neha gain 1/6

4.   Sanjeev and Shalu were partners sharing profits in the ratio of 3:2. From 1stApril 2020, they decided to change it to 3:1. For this purpose the goodwill was valued at ₹ 1,20,000. Journal entry for the above transaction will be
(A) Sanjeev capital A/c debit ₹20,000 and Shalu capital A/c credit ₹20,000
(B)Shalu capital A/c debit ₹20,000 and Sanjeev capital A/c credit ₹20,000
(C) Sanjeev capital A/c debit ₹18,000 and Shalu capital A/c credit ₹18,000
(D)Shalu capital A/c debit ₹18,000 and Sanjeev capital A/c credit ₹18,000

5   Sun, Moon and Star are partners sharing profits in the ratio of 5:3:2. With effect from 1st July 2020, they agreed to share future profits 2:3:5. They decided to record the following with affecting the values.
Profit & Loss A/c (Cr.) - ₹24,000 Advertisement Suspense A/c - ₹12,000
What is the impact of the above adjustments on Moon?
(A) No effect on Moon
(B) Moon debit by ₹ 3,600
(C) Moon credit by ₹ 3,600
(D) Moon debit by ₹ 12,000

DARSHAN ACADEMY
Subject Enrichment Assignments - 2025
CLASS: –- XII   SUBJECT: BIOLOGY

General Instructions:

- Submit your assignments in a neatly arranged file with a cover page and table of contents.
- Use A4 sheets and ensure that your handwriting or print is clear and legible.
- Make your work attractive by adding pictures, drawings, or simple borders.
- Complete the work on time and submit it on the first day after the summer vacation.

ASSIGNMENT 1: MCQ's

1. Flowers with both androecium and gynoecium are called
    1. Bisexual flowers
    2. Anther
    3. Stamens
    4. Unisexual flowers
2. The transfer of pollen from the anther to stigma is called
    1. Pollination
    2. Fertilization
    3. Adoption
    4. Diffusion
3. The fusion of female reproductive nucleus with the male reproductive nucleus is known as
    1. Adoption
    2. Excretion
    3. Fertilization
    4. Regeneration
4. The two nuclei at the end of the pollen tube are called
    1. Tube nucleus and a generative nucleus
    2. Sperm and ovum
    3. Generative nucleus and stigma
    4. Tube nucleus and sperm

5. Generative nucleus divides forming
    1. 2 male nuclei
    2. 3 male nuclei
    3. 2 female nuclei
    4. 3 female nuclei

6. Embryo sac is located inside the
    1. Stigma
    2. Ovule
    3. Micropyle
    4. Style

7. One nucleus of the pollen tube and secondary nucleus of the ovum grow into
    1. Stigma
    2. Endosperm
    3. Anther
    4. Stamen

8. The stalk of Datura flower at its base is known as
   1. Pedicel
   2. Corolla
   3. Sepals
   4. Thalamus
9. The male reproductive parts of a flower, the stamens, are collectively known as
   1. Androecium
   2. Filament
   3. Anther
   4. Gynoecium
10. The other name for gynoecium is
    1. Pistil
    2. Stigma
    3. Androecium
    4. Style
11. Functional megaspore in a flowering plant develops into
    1. Endosperm
    2. Ovule
    3. Embryo-sac
    4. Embryo
12. Which of the following is similar to autogamy, but requires pollinators?
    1. Geitonogamy
    2. Cleistogamy
    3. Apogamy
    4. Xenogamy
13. What is the function of the filiform apparatus?
    1. Guide the entry of pollen tube
    2. Recognize the suitable pollen at the stigma
    3. Produce nectar
    4. Stimulate division of the generative cell
14. A mass of nutritive material outside the embryo sac is called _____
    1. Protoplasm
    2. Pericarp
    3. Ectoderm
    4. Perisperm
15. Which of the following statements is correct?
    1. Sporogenous tissue is haploid
    2. The hard outer layer of pollen is called intine
    3. Tapetum nourishes the developing pollen
    4. Microspores are produced by endothecium

16. Which of the following fruit is produced by parthenocarpy?
    1. Brinjal
    2. Apple
    3. Banana
    4. Jackfruit
    5.
17. The process of formation of seeds without fertilization in flowering plants is known as
    1. Budding
    2. Apomixis
    3. Sporulation
    4. Somatic hybridization

18. Functional megaspore in an angiosperm develops into
    1. Endosperm

2. Embryo
3. Embryo-sac
4. Ovule

19. Rewards and attractants are required for
    1. Entomophily
    2. Cleistogamy
    3. Anemophily
    4. Hydrophily

20. A dioecious flowering plant prevents
    1. Geitonogamy and xenogamy
    2. Autogamy and xenogamy
    3. Autogamy and geitonogamy
    4. Cleistogamy and xenogamy

21. _____ is a lytic enzyme released by the sperm.
    1. Hyaluronidase
    2. Trypsin
    3. Helicase
    4. None of the above

22. How many autosomes does a human primary spermatocyte have?
    1. 34
    2. 44
    3. 54
    4. 33

23. Where does the ovum receive the sperm?
    1. Animal pole
    2. Vegetal pole
    3. Zona pellucida
    4. None of the above

24. _____ is an organelle that helps the sperm to penetrate the ovum
    1. Acrosome
    2. Zona pellucida
    3. Megalis
    4. None of the above

25. Umbilical cord contains _____
    1. Pluripotent stem cells
    2. Cord blood stem cells
    3. Blood stem cells
    4. None of the above

26. How does human sperm locomote?
    1. Flagella
    2. Cilia
    3. Neutrophils
    4. None of the above
    5.

27. Cryptorchidism is a condition where _____.
    1. One of both testes are not developed
    2. One or both testes fail to descend into the scrotum
    3. One or both testes are not formed
    4. None of the above

28. Which Artificial Reproductive Technique can help a lady conceive a child if both her fallopian tubes are blocked?
    1. SUZI
    2. IVF

3. ZIFT
4. GIFT

29. Which of the following is not a copper-releasing IUD?
   1. LNG 20
   2. CuT
   3. Lippes Loop
   4. a and c

30. Which of the following is not the characteristic of an ideal contraceptive?
   1. Irreversible
   2. Easily available
   3. User-friendly
   4. Effective with least side effects

ASSIGNMENT 2: AR TYPE QUESTIONS

Two statements are given one labelled Assertion (A) and other labelled Reason (R). Select the correct answer to this questions from the codes (a),(b),(c) and (d) as given below:-

a) **Both A and R are true and R is correct explanation of A.**
b) **Both A and R are true but R is not correct explanation of A.**
c) **A is true but R is false.**
d) **Both A and R are false**

Q.1. Assertion: A person should be considered reproductively healthy if they have healthy reproductive organs but are emotionally imbalanced.
Reason: This statement about reproductive health was given by WHO

Q.2. Assertion: Family planning is an action plan to attain reproductive health among people.
Reason: Improved programmes covering reproduction related areas were propagated by RCH to create awareness among people.

Q.3. Assertion: Reproductive and Child Healthcare Programmes is for reproduction related areas.
Reason: It deals with creating awareness among various reproduction related aspects.

Q.4. Assertion: A wide range of contraceptive methods are available for family planning.
Reason: Natural method includes condoms, diaphragms, etc., while barrier methods use of included method like periodic abstinence, lactational amenorrhea, etc.

Q.5. Assertion: Introduction of sex education in schools should be encouraged.
Reason: This will encourage children to believe in myths about sex related aspects.

Q.6. Assertion : Autogamy is a transfer of pollen grains from an anther to the stigma of the same flower on the same plant.
Reason : Xenogamy is pollination between two flowers on different plants.

Q.7. Assertion : Insects visit flower to gather honey.
Reason : Attraction of flowers prevents the insects from damaging other parts of the plant.

Q.8. Assertion : Pollen mother cells (PMCs) are the first male gametophytic cells.
Reason : Each PMC gives rise to two pollens.

Q.9. Assertion : Chasmogamous flowers require pollinating agents.
Reason : Cleistogamous flowers do not expose their sex organs.

Q.10. Assertion: Gynoecium consists of pistil.
Reason: It represents the male reproductive part in flowering plants.

Q.11. Assertion : In human male, testes are extraabdominal and lie in scrotal sacs.
Reason : Scrotum acts as thermoregulator and keeps testicular temperature lower by 2°C for normal spermatogenesis.

Q.12. Assertion : Testicular lobules are the compartments present in testes.
Reason : These lobules are involved in the process of fertilization.

Q.13. Assertion : Interstitial cell is present in the region outside the seminiferous tubule called interstitial spaces.
Reason : Interstitial cells provide nutrition to the sertoli cells.

Q.14. Assertion: The testes are situated outside the abdominal cavity within the scrotum.
Reason: Muscles in scrotum helps to maintain low temperature of testes, necessary for spermatogenesis.

Q.15. Assertion: The bulbourethral gland is a male accessory gland.
Reason: Its secretion helps in the lubrication of the penis, thereby facilitating reproduction.

ASSIGNMENT 3: CASE STUDY BASED QUESTIONS

Q1 Read the following and answer the questions given below :

A group of medical students carried out a detailed study on the impact of various factors on the different hormones during the menstrual cycle in a human female. They collected the data with different factors. Given below is the graph plotted from the data collected showing the morning temperature and concentration of hormones FSH, LH, estrogen and progesterone during normal menstrual cycle in a woman? Study the graph and answer the given questions:
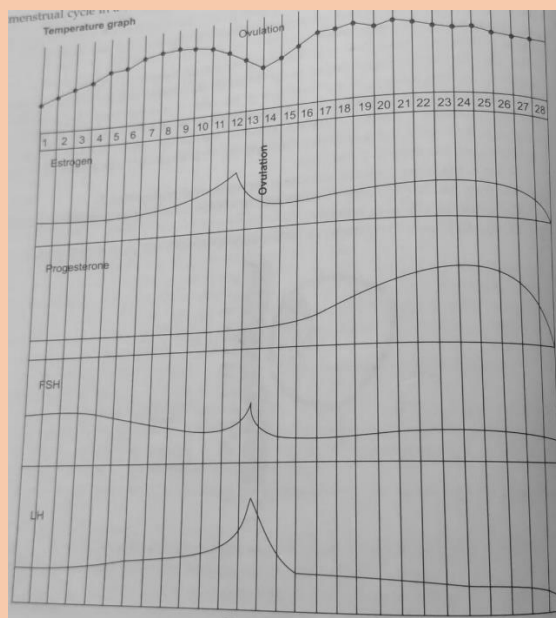
(a) As per the data plotted in the graph, in which period of the menstrual cycle is the chance of fertilization very high in human female?
(b) The human corpus luteum starts regressing after how many days after ovulation?
(c) Why is the time of ovulation of any importance to couples?
                        Or

What is the early morning recording of temperature in the graph during actual menstruation and during ovulation respectively?

Q2. Read the following and answer the questions given below:

Home testing kits are also available for some STDs, but they may not always be reliable. Use with caution. Check to see if the US Food and Drug Administration has approved the testing kit before buying it. It's important to know that a Pap smear isn't an STD test. A Pap smear checks for the presence of precancerous cells on the cervix. While it may also be combined with an HPV
test, a negative Pap smear doesn't mean you don't have any STDs. If you've had any type of sex, it's a good idea to ask your healthcare provider about STD testing. Some people may benefit from more frequent testing than others. Some STDs can also lead to severe consequences if left untreated. In rare cases, untreated STD may even be fatal. Fortunately, most STDs are highly treatable. In some cases, they can be cured entirely. In other cases, early and effective treatment can help relieve symptoms, lower your risk of complications, and protect sexual partners. In addition to taking prescribed medications for STDs, a doctor may advise a person to adjust their sexual habits to help protect them and others
a) Strict conditions are to be followed in medical termination of pregnancy (MTP). Mention two reasons.
(b) Name two STDs which can be transmitted through contaminated blood.
(c) STIs can be considered as self-invited diseases. Comment.
                                        Or
Reproductive health refers only to healthy reproductive functions. Comment.

Q.3. Read the following and answer the questions given below:

A new birth control method for men known as RISUG for Reversible Inhibition of Sperm Under Guidance is under testing. The procedure involves injection of a nontoxic polymer inside of the vas deferens. The polymer forms a coating on the inner lining of vas deferens. As sperms pass through, they are chemically disabled by the polymer. Hence, there is ejaculation but the sperms are incapable of fertilizing the egg. At any stage if needed, the polymer film can be dissolved and removed using specific injections.
(a)At which of these points would the polymer be injected?
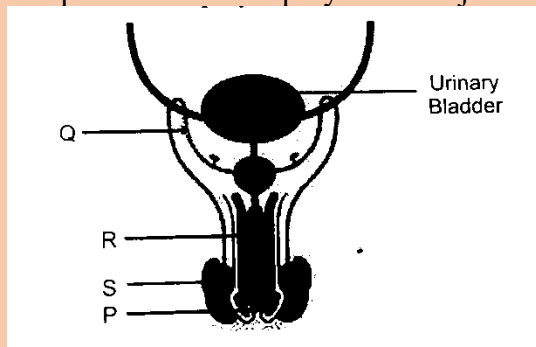
(b)What effect would the polymer have on the sperms?
(c) In another birth control method vasectomy, a small part of the vas deferens is removed or tied up. What advantage does RISUG give over vasectomy?
                                        Or
In one of the trials that were conducted to check the effectiveness of the method, one of the conditions was for males to have had two children in the past. What could be the reason for having such a condition?

ASSIGNMENT 4: VERY SHORT ANSWER TYPE QUESTIONS

Q1 What is the fate of haploid megaspores formed by megaspore mother cell in an angiosperm plant?

Q2 The meiocyte of rice has 24 chromosomes. How many chromosomes are present in its endosperm?

Q3 Mention the ploidy of the different types of cells present in the female gametophyte of an angiosperm?

Q4 In a flowering plant, a microspore mother cell produces four male gametophytes while a megaspore mother cell form only one female gametophyte. Explain?

Q5 Explain any two ways by which apomictic seeds get developed.

Q6 Name the hormones which stimulate the secretion of ovarian hormones. What would happen if the blood concentration of ovarian hormones increases?

Q7 Why is breast feeding recommended during the initial period of an infant's growth? Give reasons.

Q8 What is the significance of epididymis in male fertility?

Q9 Why is tubectomy considered a contraceptive method?

Q10 Why is CuT considered a good contraceptive device to space children?

Q11 Name the hormonal composition of oral contraceptive used by human females. Explain how it acts as a contraceptive?

Q12 Our government has intentionally imposed strict conditions for MTP in our country? Justify giving a reason.

Q13 What are the probable factors that contributed to population explosion in India?

Q14 How condoms are more advantageous than other contraceptives?

Q15 Mention any two events that are inhibited by the intake of oral contraceptive pills to prevent pregnancy in humans.

ASSIGNMENT 5: SHORT ANSWER TYPE QUESTIONS

Q1 Trace the development of an endosperm after fertilization with reference to coconut. Mention the importance of endosperm development.

Q2 Write the importance of pollen banks?

Q3 Can a flowering plant in Mumbai be pollinated by pollengrains of the same species growing in New Delhi. Provide explanation to your answer.

Q4 Why is tender coconut considered a healthy source of nutrition?

Q5 Write the characteristics features of anther, pollen and stigma of wind pollinated flwers?

Q6 How do flowers reward their insect pollinators?

Q7 A guava fruit has 200 viable seeds. Write the total number of:

a) Pollen grains   b) male gametes   c) female gametes involved in producing 200 viable seeds.

Q8 a) About 300 million spermatozoa may be present in a human male ejaculation at one time. Calculate how many spermatocytes will be involved to produce 300 spermatozoa.

b) How many chromatids are found during oogenesis in primary oocyte and first polar body in a human female?

Q9 STI's are a threat to reproductive health. Describe any two such infections and suggest preventive measures?

Q10. Mention the problems that are taken care of by Reproduction and Child Health are Programme?

ASSIGNMENT 6: LONG ANSWER TYPE QUESTIONS

Q1 a) Explain the post fertilization events leading to seed production in angiosperms.
b) List different types of pollination depending upon the source of pollen grain.

Q2 a) When a seed of an orange is squeezed, many embryos, instead of one are observed. Explain how is it possible?
b) Are these embryos genetically similar or different? Comment.

Q3 Hybrid varieties of several food and vegetable crops are being extensively cultivated. However, plant breeders face a serious problem about their seeds. What is the problem and how can it be solved?

Q4 Explain the development of a secondary oocyte in a human female from the embryonic stage upto its ovulation. Name the hormones involved in this process.

Q5 a) Explain menstrual cycle in human females
b) How can scientific understanding of the menstrual cycle of human females help as a contraceptive measure?

ASSIGNMENT 7: DIAGRAM BASED QUESTIONS

Q1 Draw and Label the Longitudinal Section of a Flower"
Q2 "Illustrate the Structure of a Mature Ovule and Label Its Parts"
Q3 "Draw a Well-Labeled Diagram of a Pollen Grain"
Q4 "Draw and Label the Structure of a Mature Embryo Sac (7-Celled, 8-Nucleate)"
Q5 "Illustrate and Label the Process of Double Fertilization in Angiosperms"
Q6 "Create a Comparative Diagram Showing Wind and Insect Pollinated Flowers with Key Differences"
Q7 "Draw the Process of Microsporogenesis from a Pollen Mother Cell to Tetrad Stage"
Q8 "Illustrate the Development of the Female Gametophyte (Embryo Sac) from a Megaspore"
Q9 "Draw and Label the Structure of a Monocot and Dicot Seed for Comparison"
Q10 Draw the stages of follicular development in the ovary:
    – Primary follicle
    – Secondary follicle
    – Graafian follicle
    – Ovulation
    – Formation of Corpus luteum
Label each stage and arrange them in sequence.
Q11 Draw a sectional diagram of a seminiferous tubule of the testis showing different stages of **spermatogenesis**.
    Label:
    – Spermatogonia
    – Primary and Secondary Spermatocytes
    – Spermatids
    – Spermatozoa

– Sertoli cells
– Leydig cells (outside the tubule)

Q12 Draw a well-labeled diagram of the human male reproductive system. Also, mention the function of any two parts labeled in the diagram.

ASSIGNMENT 8: ART INTEGRATED ACTIVITY

Perform any two activities-

Activity 1- Write a short creative note/poem/story personifying the journey of a pollen grain to the ovule.

Activity 2-Poster-Making – "Myths vs. Facts about Reproduction"
Objective:
To spread awareness by busting common myths about human reproduction.
Instructions:
- Students create a poster showing 3–5 myths and their scientific explanations.
- Blend illustration, text, and creativity to design an informative, eye-catching poster.
- Use calligraphy or collage techniques for enhanced visual impact.

Activity 3- Puzzle Craft – "Match the Hormone"
Objective:
To reinforce hormone-related concepts through an interactive game.
Instructions:
- Students design and decorate **flashcards or jigsaw puzzles** linking hormones to their source and function.
- Example cards:
  - o   FSH – Pituitary – Stimulates follicle development
  - o   Progesterone – Corpus luteum – Maintains endometrium
- Use artistic icons or visual metaphors to represent each hormone.
-

Activity 4 Poetry / Rap Composition – "The Reproduction Rap"
Objective:
To combine biology with language and rhythm for deeper retention.
Instructions:
- Students write a **rap, poem, or song** explaining the process of reproduction.
- Include key terms like ovulation, fertilization, implantation, etc.
- Perform it solo or in a group using basic beats, or record a video presentation.

ASSIGNMENT 9: PROJECT WORK

Prepare a Project File on any one the following topic –

Task 1- Project work- Prepare a project report on any one topic suggested below or you can choose any topic of your choice:

- Effect of pH on germination of seed.
- Study the Process of Sugar Fermentation.
- Study of Aquaponics.
- Study of Probiotics and their Preparation.
- Study the effect of light on the distribution of plants.
- Investigation of Antibiotic Resistance in Bacteria:
- Effect of Exercise on Heart Rate and Breathing Rate
- Study of Mendelian Genetics Using Punnett Squares

- Case study on any disease
- The Impact of Different Music Genres on Plant Growth
- Food Preservation Methods
- The Effects of Different Types of Fertilizers on Plant Growth

General Instructions:
1. **Cover page**- Displaying the topic.
2. **Acknowledgement** – Thanking the people or institution that has helped you in completion of your project.
3**. Certificate**- Mentioning your name and the name of teacher under whose supervision you have completed your work.
4**. Index**- Giving the list of contents with page numbers.
5. **Introduction-** Giving the purpose and importance of a study.
6**. Chapters**- Give a title to each chapter along with details, pictures and newspaper cuttings.
7. **Conclusion**- What did you learn from your study?
8. **Bibliography**- Showing the sources from where you have gathered information.

Present the following in your project report:
• Collection of Data/Statistical Analysis
• Experimentation/Analysis/Explanation and interpretation
• Bibliography
The students must submit original work. Project Report should be hand written only. Students can use primary as well as secondary sources for the research work.

ASSIGNMENT 10: NATURE WALK

Activity Title: *Nature Walk: Identifying Modes of Pollination in Flowers*

Instructions:
Go on a short nature walk in your nearby green area. Observe at least **3 different types of flowers** in their natural habitat. Use your observation skills to answer the following:

Record the following for each flower:

a) Name and sketch the flower (or take a photograph).
b) Is the flower **actinomorphic (radial symmetry)** or **zygomorphic (bilateral symmetry)?**
c) What are the **visible features** that suggest the mode of pollination (e.g., bright color, fragrance, nectar, position of stamens and stigma)?
d) Predict the likely **pollination agent**: wind, water, insect, bird, etc.
e) Is the flower likely to be **self-pollinated** or **cross-pollinated**?

Follow-up Questions:

1. What adaptations did you observe in the flowers that support their mode of pollination?
2. How does flower structure relate to the type of pollination?
3. Why is biodiversity in flower structure important for plant reproduction in nature?

Presentation Tips:

- Use **a file folder or spiral bind** to organize your assignment neatly.

- Make the headings bold and underlined.
- Use proper margins and spacing for neatness.
- Illustrate your work wherever possible.

Happy Learning & Have a Great Summer! 🟠 📖

DARSHAN ACADEMY
Subject Enrichment Assignments - 2025
CLASS: — XII   SUBJECT: BUSINESS STUDIES

General Instructions:

- Submit your assignments in a neatly arranged file with a cover page and table of contents.
- Use A4 sheets and ensure that your handwriting or print is clear and legible.
- Make your work attractive by adding pictures, drawings, or simple borders.
- Complete the work on time and submit it on the first day after the summer vacation.

ASSIGNMENT   - 1 (CHAPTER 1 - NATURE AND SIGNIFICANCE OF MANAGEMENT)

1. How does a manager want to achieve his objectives?
   - (a) Efficiently
   - (b) Effectively
   - (c) Efficiently and effectively
   - (d) None of the above
2. A manager obtains the required capital at 12% interest while the prevailing rate of interest happens to be 10%. How would you describe such a manager?
   - (a) Efficient   (b) Effective   (c) Efficient and Effective   (d) Inefficient
3. What type of power management is? (a) Visible (b) Invisible (c) Separate (d) Collective
4. By evaluating results what does management try to find out and then takes corrective action.
   - (a) Profit (b) Loss (c) Deviations (d) None of these
5. In the context of business what does research refer to?
   - (a) Finding out new products
   - (b) Finding out new markets
   - (c) Finding out new methods of distribution (d) All the above
6. What happens when the management of an organization gets weakened?
   - (a) Organization progresses
   - (b) Production increases
   - (c) Profit increases
   - (d) Organization faces heavy loss
7. Which one of the following sequences of process of management is correct:
   - (a) Planning, Controlling, Organising, Staffing
   - (b) Staffing, Planning, Organising, Controlling
   - (c) Planning, Organising, Staffing, Controlling
   - (d) Organising, Planning, Staffing, Controlling
8. Management is:
   - (a) An Activity (b) A process (c) A Tradition (d) An Illusion
9. Management ensures:
   - (a) Providing employment opportunities
   - (b) Maintaining profit
   - (c) Ensuring maximum utilization of resources
   - (d) Control on cost
10. Management is important because:
    - (a) It helps in achieving group goals
    - (b) It helps in development of society
    - (c) It increases efficiency
    - (d) All of the above
11. Which degree is essential to become a manager?
    - (a) B.Com.   (b) M.Com.   (c) M.B.A.   (d) None of these

12. For which of following minimum qualification has not been prescribed?
    (a) Manager   (b) Doctor   (c) Lawyer   (d) Chartered Accountant

ASSIGNMENT   - 2 (CHAPTER 1 - NATURE AND SIGNIFICANCE OF MANAGEMENT)

1. What is the name of the management institute established in India?
    (a) IIT   (b) AIMA   (c) IIM   (d) ICICI

2. Whose speciality happens to be 'personal skill'?
    (a) Profession (b) Art   (c) Science   (d) None of these

3. The principles of Physics and Chemistry are stable. What is your opinion about management?
    (a) Stable   (b) Unstable (c) No principle is available   (d) None of these

4. Management is a/an
    (a) Art   (b) Science   (c) Profession (d) All of the above

5.   Management may be called which of the following science
    a)Perfect Science (b) Physics (c) Applied Science (d) Chemistry

6. Levels of management in an organization serve as a _____ line among the different managerial posts.
    (a) Strong   (b) Dividing   (c) Weak   (d) Straight

7. A _____ chain is formed from the top-level management to the lower-level management.
    (a) Vertical   (b) Thick   (c) Scalar   (d) Small

8.   At what level of management does the Chief Executive Officer operate?
    (a) Top-level (b) Middle-level (c) Lower-level (d) None of these

9.   To which level of management do the managers of first-line belong?
    (a) Lower-level (b) Middle - level (c) Top-level (d) None of these

10. 'Thinking before doing', under which function of management is this performed?
    (a) Controlling (b) Directing (c) Organising (d) Planning

11. Under what function of management does the determining of structure of roles fall?
    (a) Planning (b) Organising (c) Directing (d) Controlling

12. Under what function of management does the work of filling posts with people fall?
    (a) Planning (b) Organising (c) Staffing (d) Directing

13. Under what function of management does the 'corrective action' fall?
    (a) Planning (b) Organising (c) Directing (d) Controlling

2

14. What, out of the following, does not fall under directing?
    (a) Planning (b) Supervision (c) Leadership (d) Motivation

15. Number of levels of management are: (a) one (b) two (c) three (d) four

16. Coordination is needed where the efforts of _____ persons are required?
   (a) One person (b) Two persons (c) Three persons (d) Many persons

ASSIGNMENT - 3 (CHAPTER 1 - NATURE AND SIGNIFICANCE OF MANAGEMENT)

1. Successful organizations do not achieve goals by chance but by following a deliberate process known as
    (a) Planning (b) Co-ordination (c) Controlling (d) Management
2. Management is essential for the organizations which are
    (a) Non-profit organizations (b) Service organizations (c) Social organizations (d) All of the above
3. Management contains a series of interrelated functions that include
    (a) Planning (b) Organising (c) Directing (d) All of the above
4. People in the organizations carry out diverse tasks with the aim to achieve
    (a) Different objectives (b) Common objectives (c) Both of the above (d) None of the above
5. Successful management ensures that
    (a) Goals are achieved with least cost   (b) Timely achievement of goals
    (c) Both of the above   (d) None of the above
6. Efficiency is concerned with
    (a) Doing the right thing (b) Doing things right (c) Achieving end results (d) None of the above
7. Effectiveness relates to
    (a) Doing the right task (b) Completing activities (c) Achieving goals (d) All of the above
8. Rohan works as a production manager in Global Enterprises Limited. He has been given the task of getting 1000 units of hand-woven table mats manufactured at the cost of ₹150 per unit within 10 days. In order to be acknowledged as an effective manager, he must ensure that
    (a) The cost of production does not exceed ₹150 per unit
    (b) The work is completed within 10 days even at higher cost per unit
    (c) The cost of production is less than ₹150 per unit
    (d) All of the above
9. Jay is working as a marketing manager in a company. Has been given the task of selling 100000 units of a product at the cost of ₹100 per unit within 20 days. He is able to sell all the units within the stipulated time, but had to sell last 1000 units at 20% discount in order to complete the target. In such a situation, he will be considered to be
    (a) An efficient manager   (b) An effective manager
    (c) Both effective and efficient manager   (d) None of the above
10. Management is said to be poor if it is
    (a) Efficient but ineffective   (b) Effective but inefficient
    (c) Both inefficient and ineffective   (d) All of the above
11. Tarang Enterprises Limited is planning to increase its sales by 30% in the next quarter.
    Identify the feature of management being highlighted in the given statement.
    (a) Management is all pervasive   (b) Management is a goal oriented process
    (c) Management is a continuous process   (d) All of the above

3

ASSIGNMENT - 4 (CHAPTER 1 - NATURE AND SIGNIFICANCE OF MANAGEMENT)

CASE STUDIES

Q.1   A Cloth manufacturer distributes its defective product at free of cost (after getting them repaired from Nari Niketan at lower cost) to orphanage. Which values are being attested in this solution?

Q.2   An organization has production, purchase, marketing, finance and human resource departments. All of them working together to achieve organizational goals. From your point of view which value which value is reflected here?

Q.3   A manufacturer of fridge has used new technology in place of using harmful gases, which do not cause air pollution. Which value being followed here?

Q.4   A production manager has directed his employees to put/throw different types of wastes like papers, plastics & chemicals in the respective earmarked dustbins. By this which value he want to inculcate among his employees?

Q.5   An industrial unit, working in a backward area opens schools for education at nominal cost for the children of its employees and local people. By this act which value is promoted here?

Q.6   A factory established in a residential locality, uses machines creating heavy noise while running. Factory Manager always ready to provide financial help to local people. Due to noise pollution student can't study properly and residence can't sleep/work properly. The owners also know it. Which values are affected here?

Q.7   A famous doctor charges high for consultation from his patients and refuses to treat the poor patients without consultation charges. He also pays attention to the medical representatives and agents of Pharma co. he takes gifts and commission also. In your view, is it professional behavior of doctor? Does he follow the code of conduct of doctor

Q.8   The purchase, production and sales managers at Sharda Ltd, a firm manufacturing ready made garments are generally at a conflict, as they have their own objectives. Usually each thinks that only they are qualified to evaluate, judge and decide on any matter, according to their professional criteria. Name the concept which will be required by the CEO Mr. Raman, to reconcile the differences in approach, interest or opinion in the organization.

Q.9   List any three tasks that Mr. Armstrong needs to do, as a production manager, in his firm, to carry out the plans laid down by the top managers.

Q.10 In a company, the marketing department's objective is to increase sales by 10 per cent by offering discounts. But, the finance department does not approve of such discounts as it means loss of revenue. These kinds of conflict arise in organizations because of the lack of one of the concepts of management. (a) Identify and explain the concept of management highlighted above. (b) State the characteristic of management the company is violating.

Q.11   Kamal, Khan and David are partners in a firm engaged in the distribution of dairy products in Madhya Pradesh. Kamal is a holder of Senior Secondary School Certificate from Central Board of Secondary Education with Business Studies as one of his elective subjects. Khan had done his post-graduation in Hindi literature and David in Dairy Farming. One day there was a serious discussion between Khan and David regarding the nature of 'Management as a Science. Khan argued that Management is not a science whereas David was of the opinion that Management is a science. Kamal intervened and corrected both Khan and David about the nature of Management as a Science with the help of his knowledge of Business Studies. Explain, how Kamal would have been able to satisfy both Khan and David.

Q.12   "A successful enterprise has to achieve its goals effectively and efficiently." Explain the statement, giving examples.

ASSIGNMENT - 5 (CHAPTER 2 - PRINCIPLES OF MANAGEMENT)

1. Which of the following statements is true with reference to principles of management?
    (a) The principles of management have evolved.
    (b) The principles of management are yet to be evolved.
    (c) The principles of management are in the continuous process of evolution.
    (d) None of the above.
2. By profession, FW Taylor was a (a) Mechanical engineer (b) Mining engineer (c) Psychologist (d) Human resource officer
3. The principles of pure science is considered to be _____ in nature.
    (a) Flexible (b) Rigid (c) Creative (d) None of the above
4. Which of the following statements best defines the techniques of management?
    (a) It is a set of guidelines to take decisions and actions.
    (b) It is a procedure which involves a series of steps to be taken.
    (c) They are general rules for behaviour of individuals.
    (d) None of the above.
5. The principles of management have been developed on the basis of
    (a) Observation (b) Experimentation (c) Personal experiences of the manager (d) All of the above
6. Which of the following statements is/are true with reference to principles of management?
    (a) The principles are guidelines to action.
    (b) The principles denote a cause-and-effect relationship.
    (c) Principles help the manager to take decisions while performing various management functions.
    (d) All of the above.
7. The principles of management are intended to be applied to all types and sizes of organizations. This statement reflects that the principles of management are
    (a) General guidelines (b) Flexible (c) Universally applicable (d) Mainly behavioural
8. The principles of management do not provide readymade straight jacket solutions to all management problems because
    (a) The real business situations are complex. (b) The real business situations are dynamic. (c) The principles act as general guidelines. (d) All of the above.
9. Principles of management can be modified by the manager when the situation demands. This statement implies that the principles of management are (a) Rigid (b) Contingent (c) Flexible (d) Universally applicable
10. The principles of management enhance the understanding of relationship between human and material resources for the achievement of organizational goals. Identify the feature of the principles of management being described in the given statement.
    (a) Cause and effect relationships
    (b) Optimum utilization of resources and effective administration
    (c) Formed by practice and experimentation
    (d) Mainly behavioural

ASSIGNMENT - 7 (CHAPTER 2 - PRINCIPLES OF MANAGEMENT)

1. The application of the principles of management has to be changed as per the requirements of the prevailing situation at a particular point of time. Which feature of the principles of management is being described in the given statement?
(a) Contingent (b) Mainly behavioural (c) Cause and effect relationship (d) General guidelines

2 Principles of management emphasize on logical and rational decision making rather than on the basis of bias and prejudice. The given statement highlights that the knowledge of principles of management leads to
(a) Providing managers with useful insight into reality
(b) Scientific decisions
(c) Meeting changing environmental requirements
(d) All of the above

3. 'Rule of thumb' refers to (a) Use of personal judgement in handling management issues (b) Adopting a hit-and-trial approach to resolve management problems (c) Both of the above (d) None of the above

4. According to Taylor, "even a small production activity like loading figures of iron into boxes can be scientifically planned and managed. This can result in tremendous savings of human energy as well as wastage of time and materials." Identify the related principle of scientific management.
(a) Harmony, not discord (b) Science, not rule of thumb (c) Development of each and every person to get his/her greatest efficiency and prosperity (d) None of the above

5. According to this principle of scientific management, "Scientific management has for its foundation the firm conviction that true interest of the management and workers are one and the same; the prosperity for the employer cannot exist for a long time unless it is accompanied by prosperity for the employees and vice versa."
(a) Science, not rule of thumb   (b) Co-operation, not individualism
(c) Harmony, not discord   (d) All of the above

6. According to this principle of scientific management, the employees should be rewarded for their suggestions which results in substantial reduction in the cost.
 (a) Science, not rule of thumb   (b) Co-operation, not individualism
(c) Harmony, not discord   (d) All of the above

7. According to Taylor, "each specialist is to be assigned work according to his/her qualities, the employees who possess technical mastery should be involved in planning work whereas those with energy and good health may be assigned execution work." Name the related principle of scientific management.
(a) Functional foremanship (b) Science, not rule of thumb (c) Development of each and every person to his or her greatest efficiency and prosperity (d) None of the above

ASSIGNMENT - 8 (CHAPTER 2 - PRINCIPLES OF MANAGEMENT)

1. Considering the fact that it is difficult to find one single person with all the needed qualities, Taylor suggested appointment of a specialist through this technique of scientific management. Identify the technique. (a) Standardization and simplification of work (b) Method study (c) Functional foremanship (d) Motion study

2 The concept of Work Study techniques includes
(a) Time study (b) Motion study (c) Fatigue study (d) All of the above

3. The objective of this technique of scientific management is to reduce a given line or a product to fixed type sizes and characteristics. Name the technique.
(a) Method study   (b) Differential piece wage system

(c) Standardization and simplification of work   (d) Functional foremanship
4.   This technique of scientific management helps in development of the concept of assembly line which is widely used in automobile companies these days as well. Identify the technique.
       (a) Motion study (b) Standardization and simplification of work (c) Method study (d) lime study

5.   Which of the following is an objective of time study?
       (a) To determine the number of workers to be employed
       (b) To formulate suitable incentive schemes
       (c) To calculate the labour costs
       (d) All of the above
6.   This technique of scientific management aims to determine the amount and frequency of rest intervals that should be provided to the employees during working hours.
       (a) Time study (b) Method study (c) Motion study (d) None of the above
7.   The technique of differential piece rate system was developed by Taylor in order to (a) Discriminate between efficient and inefficient workers (b) Reward the efficient worker (c) Motivate the inefficient workers to perform better (d) All of the above
8.   The application of this principle of management leads to higher production and better work for the same effort. Identify the related principle of general management.
       (a) Discipline (b) Equity (c) Division of work (d) Order

9   A production manager at top level in a reputed corporate, Mr. Rathore holds the responsibility for ordering rav material for the firm. While deciding on the supplier for the financial year 2018-19, he gave the order to his cousin at a higher price per unit instead of the firm's usual supplier who was willing to lower the rates for the order.
       (a) Which principle of management was violated by Mr. Rathore? (b) What are the positive impacts of following the above identified principle?

ASSIGNMENT   - 9 (CHAPTER   - MARKETING)

1. Which of the following statements is not true with regard to the concept of product?
       (a) It is a bundle of utility.   (b) It is a source of satisfaction.
       (c) It is confined to physical product. (d) All of the above.
2. In order to promote the sales of the company, Mukund Limited has decided to offer consumer durable products at 0% finance. Identify the type of marketing factor being described in the above line.
(a) Controllable factor (b) non-controllable factor (c) Environmental factor (d) None of the above

3. Harshit is planning a start up a venture for offering mobile pet care services at door step. He has decided to charge ?1000 for heated hydrobath & blow dry of a pet and ?500 for shampoo and conditioning. Identify the element of marketing mix which is not being described in the above case.
       (a) Product (b) Place (c) Price (d) None of the above
4. Guneet went to a shop and expressed her desire to buy a copper water bottle only of Prestige company. Identify the component related to branding being described in the above case.
       (a) Trademark (b) Generic name (c) Brand name (d) Brand mark
5. The term 'market' may be understood in which of the following contexts?
        (a) Geographical area covered (b) Type of buyers (c) Quantity of goods transacted (d) All of the above
6. According to the modem marketing concept, which of the following statements is true?

(a) It refers to the group of people who do not have the ability but willingness to buy a particular product.

(b) It refers to only the set of people who have the purchasing power to buy a particular product.

(c) It refers to the set of actual and potential buyers for a product.

(d) It refers only to the people who show interest in a particular product.

7. Which of the following is a feature of marketing process?

    (a) Satisfying needs and wants of the consumers   (b) Creating a market offering

    (c) Developing an exchange mechanism   (d) All of the above

8. Which of the following statements does not reflect a condition to be satisfied for an exchange to take place?

    (a) Involvement of at least two parties- the buyer and the seller- is mandatory.

    (b) Each party should be capable of offering something of value to the other.

    (c) Exchange can take place if the buyers and sellers are not able to communicate with each other.

    (d) Each party should have freedom to accept or reject other party's offer.

9. Which of the following can be marketed?

    (a) Red Cross society persuading to donate blood.

    (b) Kerala Tourism persuading people to visit Kerala for health tourism.

    (c) Political parties persuading to vote for a particular candidate.

    (d) All of the above

ASSIGNMENT - 10 (CHAPTER - MARKETING)

1)   Ginika, Tanish and Rohit were friends from college days and now they are doing different kinds of business. They regularly meet and discuss their business ideas and exchange notes on customer satisfaction, marketing efforts, product designing, selling techniques, social concerns etc. In one of such meetings, Ginika drew the attention of Tanish and Rohit towards the exploitation of consumers. She told that most of the sellers were exploiting the consumers in various ways' and were not paying attention towards the social, ethical and ecological aspects of marketing, whereas she was not doing so. Tanish told that they were under pressure to satisfy the consumers, but stated that the consumers would not buy or not buy enough unless they were adequately convinced and motivated for the same. Rohit stressed that a company cannot achieve its objectives without understanding the needs of the customers. It was the duty of the businessmen to keep consumer satisfaction in mind because business is run by the resources made available to them by the society. He further stated that he himself was taking into consideration the needs of the customers. Identify the various types of thinking that guided Ginika, Tanish and Rohit in the marketing efforts of their business. Also, state one more feature of the various types of thinking identified that is not given in the above para.

2)   "Time Line" watch manufacturing company is a renowned company marketing watches. It performs various activities like, market analysis, product designing or merchandising, packaging, warehousing, branding, pricing, promotion and selling. The company maintains good customer relations through various follow up activities. This helps the company in procuring repeat sales orders.

  1. Name the concept related to the activities mentioned in the above paragraph.

  2. Explain any two features of the concept identified in part (1)

3)   "Coconut Joy Ltd." are the manufacturer of vegetarian frozen dessert food products made with coconut milk, agave syrup and other certified ingredients. The founders of the company Lovely and Lalita originally developed this treat to meet their own needs but found that their friends and families around were also keen to use the products. It was not only the vegetarians, but also those who could not get

enough environment friendly sustainable food, that appreciated the product. It did not take long for Lovely and Lalita to recognise the potential of their little venture. In the beginning they started from their home with the product being sold through local family parties that enable guests to personally meet the owner. This helped to establish strong connections with the prospective buyers and the company could put the product on shelves of natural food store. The company used* all marketing activities to grow and expand. The company began sponsoring booths at festivals, drawing attention to its newly created vegetarian products. It also disseminated relevant information to media about its products and the people who helped in building the company's reputation. Lovely and Lalita were invited for an interview with one of the leading TV channels in which they talked about their environment friendly vegetarian products. To show its gratitude to customers, local business and government officials who supported the company from the beginning, "Coconut Joy Ltd." hosted a gala event and involved all of them to raise funds for a few local NGO's. The company also asked its fans and customers to send songs and poetry conveying their impression about "Coconut 'Joy's Ltd." products.

1. Identify and explain the communication tool used by "Coconut Joy Ltd". .
2. Briefly explain the role of the tool identified in (1) above.

4) Maruti Vega Ltd. entered into the market with coloured televisions and have now introduced products like audio systems, air-conditioners, washing machines, etc. The company is not only offering the products but also handling complaints and offering after-sales services. Identify the element of marketing mix discussed here.

5) Beauty Products Ltd. is a natural and ethical beauty brand famous for offering organic beauty products for men and women. The company uses plant-based materials for its products and is the No.1 beauty brand in the country. It not only satisfies its customers but also believes in the overall protection of the planet.
Identify the marketing management philosophy being followed by 'Beauty Product Ltd'.

6) Crackers Ltd., a fire-cracker manufacturing company launched some new products on eve of Diwali which attracted many buyers. To meet the increased demand, the company employed children from nearby villages. Although the product was in great demand, appropriate safety warnings for use were not mentioned on the packets that led to many accidents.
Identify and explain the important product-related decision that was not taken into consideration by the company

7) ABC Crackers Ltd., a fire-cracker manufacturing company, launched some new products on the eve of Diwali in the market which attracted many buyers. To meet the increasing demand, the company employed people from nearby villages where there was a lot of unemployment. Because of the good behaviour of the management with the employees, more and more people wanted to join the company. As the products were in great demand in the market, a competitor imitated the products. The products of the competitor were not accepted by the consumers as it was a status symbol to buy the products of ABC Crackers Ltd. because of their quality.
Identify and explain the product-related decision because of which consumers preferred the products of ABC Crackers Ltd.

General Instructions:

- Submit your assignments in a neatly arranged file with a cover page and table of contents.
- Use A4 sheets and ensure that your handwriting or print is clear and legible.
- Make your work attractive by adding pictures, drawings, or simple borders.
- Complete the work on time and submit it on the first day after the summer vacation.

ASSIGNMENT 1-MCQS I

A. For the mentioned cell, which of the following statements is correct?

$$Cu(s) \mid Cu^{2+}(aq) \parallel Ag^{+}(aq) \mid Ag(s)$$
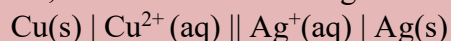
(1) Cu is the cathode and Ag is the anode.
(2) Metal and electrolyte are separated by a single line representing salt-bridge.
(3) The emf of the cell is negative if the spontaneous reaction takes place.
(4) The emf is given by: Ecathode – Eanode.

B. The correct relationship between Gibbs free energy and equilibrium constant for a cell reaction is

(1) $\Delta G° = - RT \ln K$ 　　　　　　　　　　　　　　(2) $\Delta G° = - 2.303 \log_{10} K$
(3) $\Delta G° = - 2.303 \, RT \ln K$ 　　　　　　　　　　(4) $\Delta G = - RT \ln K$

C. The limiting molar conductivities $\Lambda°$ for NaCl, KBr and KCl are 126, 152 and 150 S cm^2 mol^{-1} respectively. The $\Lambda°$ for NaBr S cm^2 mol^{-1} is:

(1) 302　　　　　　　　　(2) 176　　　　　　　　　(3) 278　　　　　　　　　(4) 128

D. Consider the following formulae: -

(a) $\chi_{(\text{mole fraction})} = \dfrac{n_{\text{solute}}}{n_{\text{solvent}}}$

(b) $\text{Molarity} = \dfrac{\text{Mass of solute in g}}{\text{Volume of solution in L}}$

(c) $\text{Molality} = \dfrac{\text{No. of moles of solute}}{\text{amount of solvent in kg}}$

(d) $\text{Volume \%} = \dfrac{\text{Volume of component}}{\text{Volume of solution}}$

The ones representing incorrect formula are:-
(1) (a), (b), and (c)　　　　(2) (a), (b), (c) and (d)　　　(3) (a),(b) and (d)　　　(4) (b), (c), and (d)

E. Two aqueous solutions containing 10 g of urea and 40 g of substance x in 100 g of water freeze at same temperature. The molecular mass of x is: -
   (1) 155 g/mol   (2) 101 g/mol   (3) 248 g/mol   (4) 342 g/mol

F. The value of van't Hoff factor for 1 mole of magnesium chloride, assuming 100% dissociation is
   (1) 1   (2) 2   (3) 3   (4) 0.33

G. Consider the following pair of liquids for interactions in pair of liquids: -
   (a) Acetone and chloroform show positive deviation from Raoult's law
   (b) Carbon disulfide and acetone show positive deviation from Raoult's law
   (c) Acetone and ethanol show negative deviation from Raoult's law
   Choose the most appropriate response: -
   (1) Both (a), and (b) are correct   (2) Both (a) and (c) are correct
   (3) Only (b) is correct   (4) only (b) is correct.

H. The rate constant of zero-order reactions has the unit
(a) s^{-1} (b) $mol\ L^{-1}\ s^{-1}$ (c) $L^2\ mol^{-2}\ s^{-1}$ (d) $L\ mol^{-1}\ s^{-1}$

I .In the reaction $2A + B \rightarrow A_2B$, if the concentration of A is doubled and that of B is halved, then   the rate of the reaction will
(a) increase 2 times   (b) increase 4 times   (c) decrease 2 times   (d) remain the same

J. In pseudo unimolecular reactions
(a) both the reactants are present in low concentration
(b) both the reactants are present in same concentration
(c) one of the reactant is present in excess
(d) one of the reactant is non-reactive

ASSIGNMENT 2-CASE STUDY

Read the passage given below and answer the following questions

According to Raoult's law, the vapour pressure of a volatile component in a given solution is given by $p_i = x_i\ p_i^0$. In the solution of a gas in a liquid, one of the components is so volatile that it exists as a gas and we have already seen that its solubility is given by Henry's law which states that $p=K_H\ x$. liquids at a given temperature vapourise and under equilibrium conditions the pressure exerted by the vapours of the liquid over the liquidphase is called vapour pressure. In a pure liquid the entire surface is occupied by the molecules of the liquid. Raoult's law states that for a solution of volatile liquids, the partial vapour pressure of each component of the solution is directly proportional to its mole fraction present in solution. Dalton's law of partial pressure states that the total pressure (p_{total}) over the solution phase in the container will be the sum of the partial pressures of the components of the solution and is given as: $P_{total} = P_1 + P_2$

1. After adding non -volatile solute vapour pressure of solution
(A) Increases
(B) Decreases
(C) Unaffected
(D) Increase or decrease according to nature of solute

2. What is the effect on vapour pressure of 1 kg water after adding 1 mol of sucrose?
(A) Increases

(B) Unaffected
(C) May increase or decrease
(D) Decreases

3. A solution of two liquids boils at a temperature more than the boiling point of either of them. What type of deviation will be shown by the solution formed in terms of Raoult's law ?
(A) Negative deviation   (B) Positive deviation
(C) First positive then negative   (D) First negative then positive
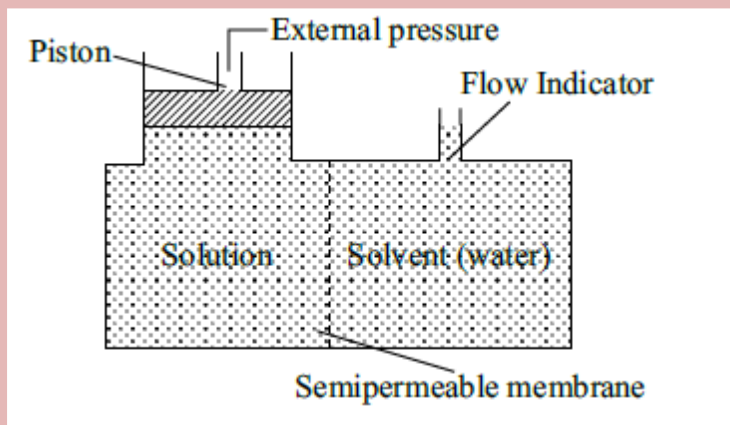
4. Which of the following aqueous solutions should have the highest boiling point ?
(A) 1.0 M NaOH
(B) 1.0 M Na$_2$SO$_4$
(C) 1.0 M NH$_4$NO$_3$
(D) 1.0 M KNO$_3$

ASSIGNMENT 3-FORMULAE BOOKLET

Make a booklet of all the formulaes from the covered chapters.

ASSIGNMENT 4- PICTURE AND GRAPHS BASED

1. Elucidate the process depicted in the following diagram.

2. Identify the type of battery from the given diagram of cell and answer the following questions:-

(i) State the Electrolyte

(ii) Write anode and cathode

(iii) Formulate all the reactions

NH₄Cl and saw dust and ZnCl₂ → ... Brass cap / Pitch or Shellac / Zinc vessel / Carbon rod / Muslin bag / Porous paper

H+   MnO₂ and charcoal
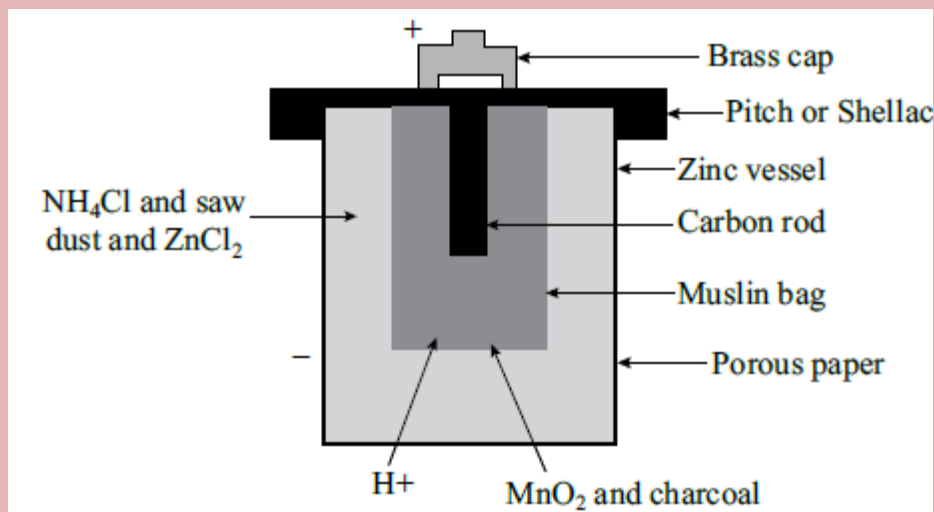
ASSIGNMENT 5-LAWS AND STATEMENTS

(a) Henry's Law
(b) Raoult's Law
(c) Kohlrausch Law
(d) Order and Molecularity
(e) Colligative properties

ASSIGNMENT 6-ARQS

Note: In the following questions a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(a) Assertion and reason both are correct statements and reason is correct explanation for assertion.
(b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.
(c) Assertion is correct statement but reason is wrong statement.
(d) Assertion and reason both are incorrect statements.
(e) Assertion is wrong statement but reason is correct statement.

1. Assertion: When the emf of the cell becomes zero, current stops flowing.
Reason: The system of cell reaction attains an equilibrium.

2. Assertion: Conductivity of all electrolytes decreases on dilution.
Reason: On dilution number of ions per unit volume decreases.

3. Assertion:—In an electrochemical cell anode and cathode are respectively negative and positive electrode.
Reason: At anode oxidation takes place and at cathode reduction takes place.

4. Assertion – Order and molecularity of a reaction is always same.
Reason – Order is determined experimentally whereas molecularity by a balanced

4

elementary reaction.

5. Assertion: The half-life period for a first order reaction is independent of initial concentration of reactants.
Reason: For first order reaction, $t_{1/2} = 0.693/k$ which shows independency on [reactants].

6. Assertion: The decomposition of gaseous ammonia on a hot platinum surface is a zero-order reaction at high pressure.
Reason: At high pressure, the metal surface gets saturated with gas molecules. So, a further change in reaction conditions is unable to alter the amount of ammonia on the surface of the catalyst making rate of the reaction independent of its concentration.

7. Assertion: If on mixing the two liquids, the solution becomes hot, it implies that it shows negative deviation from Raoult's law.
Reason: Solutions which show negative deviation are accompanied by decrease in volume.

8. Assertion: Molarity of a solution in liquids tate changes with temperature.
Reason: The volume of a solution changes with change in temperature.

9. Assertion: Low concentration of oxygen in the blood and tissues of people living at high altitude.
Reason: Low atmospheric pressure at high altitude.

10.Assertion: The sum of mole fractions of all components of a solution is unity.
Reason: Mole fraction is independent of temperature

ASSIGNMENT 7-NUMERICALS

1. Calculate the potential of the cell reaction at 298K
   Sn^{4+} (1.50M) + Zn ----------→ Sn^{2+} (0.50M) + Zn^{2+} (2.0M)
The standard potential E^0 of the cell is 0.89V Whether the potential of the cell will increase or decrease, if the concentration of Sn^{2+} is increased in the cell? (R=8.314 JK⁻Mol⁻F = 96500C/mol)
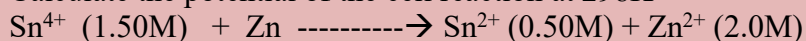
2. The measured resistance of a conductance cell containing of 7.5×10^{-3}M solution of KCl at 25^0C was 1005 ohms.
Calculate (a) specific conductance   (b) Molar conductance of the solution
(cell constant = 1.25cm⁻)

3. One litre aqueous solution of sucrose (mm =342gmol⁻¹) weighting 1015g is found to record on osmotic pressure of 4.82 atm at 293K. What is the molarity of the sucrose solution? (R= 0.0821 atm mol⁻K⁻)

4. The elements A and B form purely covalent compounds having molecular formulae AB_2 and AB_4. When dissolved in 20g of benzene 1g of AB_2 lowers the freezing point by 2.3K whereas 1g of AB_4 lowers it by 1.3K .The molar depression constant for benzene is 5.1KKgmol⁻. Calculate the atomic mass of A and atomic mass of B.

5. 100mg of a protein is dissolved in enough water to make 10ml of a solution. If this solution has an osmotic pressure of 13.3mm Hg at 25^0 C. What is the molar mass of the protein? R=0.0821 Latm mol⁻ k⁻) and 760 mm Hg=1atm.

6. What con. of nitrogen should be present in a glass of water at room temperature?
    Assume a temp of 25^0C, total pressure is 1 atm and mole fraction of Nitrogen in air is

    0.78. K_H is 8.42 X10^{-7}M/mmHg for nitrogen.

7. A first order reaction takes 10 minutes for 25% decomposition. Calculate $t_{1/2}$ for   the reaction. (Given: log 2 = 0.3010, log 3 = 0.4771, log 4 = 0.6021).

8. The rate of the chemical reaction doubles for an increase of 10 K in absolute temperature from 298 K. Calculate E_a.

9. The decomposition of NH $_3$on platinum surface is zero order reaction. What are the rates of production of N $_2$and H $_2$if $k = 2.5 \times 10^{-4} mol^{-1} L s^{-1}$?

10.   A first order reaction is 15% completed in 20 minutes. How long will it take to complete 60% of the reaction?

ASSIGNMENT 8-REASONING

1. In some cases, it is found that a large number of colliding molecules have energy more than threshold value, yet the reaction is slow. Why?
2. What will be the effect of temperature on rate constant?
3. Oxygen is available in plenty in air, yet fuels do not burn by themselves at room Temperature. Explain.
4. Which cold drink you prefer one chilled or other one at room temperature and why?
5. How the colligative properties change if the solute undergo dissociation in solution?
6. Why the colligative property of an electrolyte solution is always greater than of a non-electrolyte solution?
7. Why on dilution the Λm of CH3COOH increases drastically while that of CH3COONa increases gradually?
8. Value of standard electrode potential for the oxidation of Cl– ions is more positive than that of water, even then in the electrolysis of aqueous sodium chloride, why is Cl– oxidised at anode instead of water?
9. Can E^0cell or ΔrG^0 for cell reaction ever be equal to zero?

10.Unlike dry cell, the mercury cell has a constant cell potential throughout its useful life. why?

ASSIGNMENT 9- ART INTEGRATION ACTIVITY

Make 3D graphs and represent other topics on A3 size sheet followed by lamination on the following topics (any 2)

1. Raoult's Law for ideal and non-ideal solutions
2. Elevation in boiling point
3. Depression in freezing point
4. Lowering in vapour pressure
5. Graphs for different order reaction
6. Electrochemical cell
7. Osmotic pressure

8. Standard hydrogen electrode

<div align="center">ASSIGNMENT 10-INVESTIGATORY PROJECT AND FILE WORK</div>

Scientific investigations involving laboratory testing and collecting information from other sources

List of few suggested Projects.

Constituents of alloys
To determine the quantity of presence of casein in diff samples of milk
Sterilisation of water using bleaching powder
Poster, paints and pigments
To determine the contents of toothpaste
Analysis of honey
Determination of amount of caffeine in diff samples of tea
To determine the contents present in diff samples of cold drinks
To determine the presence of nickel in different samples of chocolates
To determine the amount of acetic acid present in different samples of vinegar
Preparation of soyabean milk
BioDiesel and biofuels
Effect of heat on vitamin c in tomatoes
Presence Lead in lipsticks
Sterilisation of water using bleaching powder
Estimation of nicotine in different samples of cigarettes
Analysis of honey
Detectiom of hydrogen peroxide in different samples of milk
Analysis of fertilizers
Analysis of fertilizers
Detection of hydrogen peroxide in different samples of milk
Analysis of fertilizers

Note: Any other investigatory project, which involves about 10 periods of work, can be chosen with the approval of the teacher.

All the students are instructed to write up their project with all essential frame work of project,Experimental part of project will be performed by the students in school lab after summer vacations

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Conclusion & Self-Reflection

Chemistry is a fundamental science that explains the composition, properties, and transformations of matter. Through practical applications, problem-solving, and experimentation, students develop a deeper understanding of chemical principles and their relevance to everyday life. The study of chemistry enhances critical thinking,

analytical skills, and a scientific approach to problem-solving. Whether in organic, inorganic, or physical chemistry, every concept contributes to a broader understanding of the natural world and its interactions.

Self-Reflection:

1. Reflect on your chemistry work and identify your areas of strength, such as problem-solving in stoichiometry or understanding reaction mechanisms, while also recognizing areas needing improvement.
2. Connect theoretical knowledge to real-life applications, such as environmental chemistry, pharmaceuticals, or industrial processes, makes learning more meaningful.
3. Conduct experiments, and analyze the results which fosters logical reasoning and scientific inquiry.
4. Manage your time to get success in chemistry which requires consistent practice and effective particularly in solving numerical problems and balancing chemical equations.
5. Collaborate and Learn from your Mistakes through group discussions, peer learning, and review your mistakes in problem-solving to enhance comprehension and retention of concepts.

By engaging in chemistry work with curiosity, persistence, and reflection, you can improve your understanding and develop a lifelong appreciation for the subject.

Presentation Tips:

- Use a file folder or spiral bind to organize your assignment neatly.
- Make the headings bold and underlined.
- Use proper margins and spacing for neatness.
- Illustrate your work wherever possible.
- Keep your work well-structured and accurate.

Happy Learning & Have a Great Summer! ☀ 📖

DARSHAN ACADEMY
Subject Enrichment Assignments - 2025
CLASS: -- XII   SUBJECT: ECONOMICS

Marks: 10 MM   **Time: 10 minutes**

General Instructions:

- Submit your assignments in a neatly arranged file with a cover page and table of contents.
- Use A4 sheets and ensure that your handwriting or print is clear and legible.
- Make your work attractive by adding pictures, drawings, or simple borders.
- Complete the work on time and submit it on the first day after the summer vacation.

ASSIGNMENT: 1
MULTIPLE CHOICE QUESTIONS

Q1. Which of the following is NOT a function of money?

A) Medium of exchange
B) Store of value
C) Means of production
D) Unit of account

Q2. Which type of money has intrinsic value?

A) Fiat money
B) Fiduciary money
C) Commodity money
D) Plastic money

Q3. The central bank of India is:

A) Reserve Bank of India
B) State Bank of India
C) Indian Banking Corporation
D) Federal Reserve Bank

Q4. Which of the following best describes "Money Supply"?

A) The total amount of currency and deposits in circulation
B) The total amount of gold reserves
C) The total number of loans given by banks
D) The total government expenditure

Q5. What does CRR stand for in banking?

A) Cash Reserve Ratio
B) Credit Regulation Rate
C) Currency Reserve Rate
D) Cash Retention Rate

Q6. Which of the following instruments is used for credit control by RBI?

A) Repo Rate
B) Income Tax
C) Import Duty
D) Budget Deficit

Q7. What is the full form of NEFT in banking?

A) National Exchange of Funds Transfer
B) Net Electronic Funds Transfer
C) National Electronic Funds Transfer
D) Net Economic Finance Transaction

Q8. Demand deposits refer to:

A) Fixed deposits in banks
B) Deposits that can be withdrawn anytime
C) Deposits made by the government
D) Deposits made by foreign investors

Q9. What is the role of the central bank in an economy?

A) Printing currency notes
B) Controlling inflation
C) Regulating commercial banks
D) All of the above

Q10. Which of the following is an example of a commercial bank in India?

A) World Bank
B) IMF
C) Punjab National Bank
D) Finance Ministry

ASSIGNMENT: 2

ASSERTION & REASONING

Marks: 10 | **Time: 10minutes**

- Read the Assertion (A) and Reason (R) carefully.
- Choose the correct option:
1. **Both A and R are true, and R is the correct explanation of A.**

2. **Both A and R are true, but R is NOT the correct explanation of A.**
3. **A is true, but R is false.**
4. **A is false, but R is true.**

Q1. Assertion (A): **Money acts as a medium of exchange in an economy.**
Reason (R): **Money eliminates the need for double coincidence of wants in a barter system.**

- ⬤ (1) Both A and R are true, and R is the correct explanation of A.
- ⬤ (2) Both A and R are true, but R is NOT the correct explanation of A.
- ⬤ (3) A is true, but R is false.
- ⬤ (4) A is false, but R is true.

Q2. Assertion (A): **The Reserve Bank of India controls the money supply in the economy.**
Reason (R): **The RBI regulates the commercial banks by adjusting the Cash Reserve Ratio (CRR) and Repo Rate.**

- ⬤ (1) Both A and R are true, and R is the correct explanation of A.
- ⬤ (2) Both A and R are true, but R is NOT the correct explanation of A.
- ⬤ (3) A is true, but R is false.
- ⬤ (4) A is false, but R is true.

Q3. Assertion (A): **A high rate of inflation leads to a fall in the purchasing power of money.**
Reason (R): **Inflation increases the value of money over time.**

- ⬤ (1) Both A and R are true, and R is the correct explanation of A.
- ⬤ (2) Both A and R are true, but R is NOT the correct explanation of A.
- ⬤ (3) A is true, but R is false.
- ⬤ (4) A is false, but R is true.

Q4. Assertion (A): **Demand deposits in commercial banks are considered as money.**
Reason (R): **Demand deposits can be withdrawn anytime and are used for transactions.**

- ⬤ (1) Both A and R are true, and R is the correct explanation of A.
- ⬤ (2) Both A and R are true, but R is NOT the correct explanation of A.
- ⬤ (3) A is true, but R is false.
- ⬤ (4) A is false, but R is true.

Q5. Assertion (A): **The money multiplier effect increases the total money supply in the economy.**
Reason (R): **Banks create money through the process of lending and credit creation.**

- ⬤ (1) Both A and R are true, and R is the correct explanation of A.
- ⬤ (2) Both A and R are true, but R is NOT the correct explanation of A.
- ⬤ (3) A is true, but R is false.
- ⬤ (4) A is false, but R is true.

Q6. Assertion (A): **The Indian economy was primarily agrarian on the eve of independence.**
Reason (R): **The British policies led to commercialization of agriculture, benefiting Indian farmers.**

⬤ (1) Both A and R are true, and R is the correct explanation of A.
⬤ (2) Both A and R are true, but R is NOT the correct explanation of A.
⬤ (3) A is true, but R is false.
⬤ (4) A is false, but R is true.

Q7. Assertion (A): **Indian industries were underdeveloped before independence.**
Reason (R): **The British followed a policy of deindustrialization, promoting British manufactured goods in India.**

⬤ (1) Both A and R are true, and R is the correct explanation of A.
⬤ (2) Both A and R are true, but R is NOT the correct explanation of A.
⬤ (3) A is true, but R is false.
⬤ (4) A is false, but R is true.

Q8. Assertion (A): **India had a weak infrastructure at the time of independence.**
Reason (R): **The British only developed infrastructure to serve their own economic and administrative interests.**

⬤ (1) Both A and R are true, and R is the correct explanation of A.
⬤ (2) Both A and R are true, but R is NOT the correct explanation of A.
⬤ (3) A is true, but R is false.
⬤ (4) A is false, but R is true.

Q9. Assertion (A): **India had a stagnant and backward economy before independence.**
Reason (R): **The British government encouraged economic growth in India by promoting local industries.**

⬤ (1) Both A and R are true, and R is the correct explanation of A.
⬤ (2) Both A and R are true, but R is NOT the correct explanation of A.
⬤ (3) A is true, but R is false.
⬤ (4) A is false, but R is true.

Q10. Assertion (A): **The British rule led to a drain of Indian wealth.**
Reason (R): **The British extracted raw materials from India at low costs and sold finished goods at high prices.**

● (1) Both A and R are true, and R is the correct explanation of A.
● (2) Both A and R are true, but R is NOT the correct explanation of A.
● (3) A is true, but R is false.
● (4) A is false, but R is true.

ASSIGNMENT: 3

CASE BASED QUESTIONS

Q1The Reserve Bank of India (RBI) Governor is addressing a press conference. Behind him, a board displays key monetary policy terms like CRR, Repo Rate, and Inflation Control.)

Explain the role of the **Reserve Bank of India (RBI)** in regulating the money supply in the economy. Discuss how changes in **CRR, SLR, and Repo Rate** influence inflation and economic growth.

Q2. A person is swiping a credit card at a shopping counter, while another person is handing over cash to the cashier. A mobile phone screen also shows an online UPI payment.)

Differentiate between **fiat money, fiduciary money, and plastic money** with suitable examples. Explain how digital transactions and credit cards impact the economy compared to cash-based transactions.

SECTION B: INDIAN ECONOMY ON THE EVE OF INDEPENDENCE

Q3. A 19th-century British textile mill with machines producing fabric. In the foreground, Indian workers are unloading raw cotton bales.)

Describe the impact of British economic policies **on Indian handicraft industries before independence. How did the policy of** deindustrialization **affect Indian artisans and employment?**

Q4. British officers collecting land taxes from poor Indian farmers in a rural village. The farmers look distressed, and some are handing over money while others seem unable to pay.

Explain the major **land revenue systems** introduced by the British in India (**Zamindari, Ryotwari, and Mahalwari**). Discuss their impact on Indian farmers and the overall agricultural sector.

ASSIGNMENT: 4

PICTURE BASED QUESTIONS

1 **Question:** Identify the missing component in the Aggregate Demand equation and explain its significance.

2. What could be the possible reasons for this shift in the Aggregate Demand curve?

3. How does this policy affect Aggregate Demand? Explain using the AD formula.

5. Name each image to the correct component of Aggregate Demand and explain its role.

ASSIGNMENT: 5

NCERT QUESTIONS: MONEY AND BANKING

1. What is a barter system? What are its drawbacks?

2. What are the main functions of money? How does money overcome the shortcomings of a barter system?

3. What is transaction demand for money? How is it related to the value of transactions over a specified period of time?

4. What are the alternative definitions of money supply in India?

5. What is a 'legal tender'? What is 'fiat money'?

6. What is High Powered Money?

7. Explain the functions of a commercial bank.

8. What is money multiplier? What determines the value of this multiplier?

9. What are the instruments of monetary policy of RBI?

10. Do you consider a commercial bank 'creator of money' in the economy?

11. What role of RBI is known as 'lender of last resort'?

ASSIGNMENT: 6

NCERT QUESTIONS: INDIAN ECONOMY ON THE EVE OF INDEPENDENCE

1. What was the focus of the economic policies pursued by the colonial government in India? What were the impacts of these policies?

2. Name some notable economists who estimated India's per capita income during the colonial period.

3. What were the main causes of India's agricultural stagnation during the colonial period?

4. Name some modern industries which were in operation in our country at the time of independence.

5. What was the two-fold motive behind the systematic deindustrialisation effected by the British in pre-independent India?

6. The traditional handicrafts industries were ruined under the British rule. Do you agree with this view? Give reasons in support of your answer.

7. What objectives did the British intend to achieve through their policies of infrastructure development in India?

8. Critically appraise some of the shortfalls of the industrial policy pursued by the British colonial administration.

9. What do you understand by the drain of Indian wealth during the colonial period?

10. Which is regarded as the defining year to mark the demographic transition from its first to the second decisive stage?

11. Give a quantitative appraisal of India's demographic profile during the colonial period.

12. Highlight the salient features of India's pre-independence occupational structure.

13. Underscore some of India's most crucial economic challenges at the time of independence.

14. When was India's first official census operation undertaken?

15. Indicate the volume and direction of trade at the time of independence.

16. Were there any positive contributions made by the British in India?

ASSIGNMENT: 7

NCERT: RURAL DEVELOPMENT

1. Why is agricultural diversification essential for sustainable livelihoods?

2. Critically evaluate the role of the rural banking system in the process of rural development in India. What do you mean by agricultural marketing? Mention some obstacles that hinder the mechanism of agricultural marketing. What are the alternative channels available for agricultural marketing? Give some examples.

3. Distinguish between 'Green Revolution' and 'Golden Revolution'.

4. Do you think various measures taken by the government to improve agricultural marketing are sufficient? Discuss.

5. Explain the role of non-farm employment in promoting rural diversification.

6. Bring out the importance of animal husbandry, fisheries and horticulture as a source of diversification.

7. 'Information technology plays a very significant role in achieving sustainable development and food security' — comment.

8. What is organic farming and how does it promote sustainable development?

9. Identify the benefits and limitations of organic farming.

10. Enlist some problems faced by farmers during the initial years of organic farming.

ASSIGNMENT: 8

DETERMINATION OF INCOME AND EMPLOYMENT

Read the passage given below and answer the following question Government expenditures and receipts have an important effect on the economy. Government budget has two sides viz. the expenditure side

and the receipt side. Money inflows in the receipt side of the budget are of three types, i.e. taxation, public borrowing and sales of goods and services; money outflow in the expenditure side of the budget are also of three types i.e. purchase of goods and services, transfer payment and repayment of debts. Taxation is a compulsory contribution made by the people to the government against which no direct payments are made by the government.

1. If government increases its expenditure on the infrastructural project, how will this impact the aggregate demand?

 (A) Increase (B) Decrease (C) Remains constant (D) Increase in a three sector closed economy

2. What will be the impact on the aggregate demand, if the government increase tax rates as it is a main source of government's revenue?

 (A) Increase (B) Decrease (C) Remains constant (D) Either Increase or decrease

 3. Public borrowings by the government will lead to -------------- (increase/decrease) money supply in the economy.

4. Suppose government gives subsidies to an industry to share its cost and help the industry to establish it in the long run. This represents which of the following objectives of the government budget?

 (A) Reducing income inequality (B) Reallocation of resources (C) Social Welfare (D) Fiscal Discipline 4 2. Government of India's ₹20 lakh crore 'AatmaNirbhar Bharat' package which aimed at reviving the economy, includes major fiscal measures like free food for the poor, direct cash transfer, money for rural job guarantee scheme, MGNREGA and credit guarantees to MSMEs. RBI has also taken steps to slash lending rates and add more liquidity into the markets. To induce liquidity RBI must have.

 a) Increased cash Reserve Ratio

 b) Reduced Repo Rate

 c) Increased Reverse Repo Rate

 d) Kept statutory liquidity Ratio constant

 3. Given the aggregate consumption expenditure function C=100+0.75 Y (Where Y= national income and C= aggregate consumption expenditure) and autonomous investment expenditure (Io)=Rs 1000 Crore, Calculate equilibrium level of Y?

4. In an economy, 60% of increased income is spent on consumption. If 2 crores are invested in a project then find: (a) Increase in income, and (b) Increase in savings.

 5. (a) Distinguish between inflationary and deflationary gap. Explain how deficient demand should be corrected using monetary policy.

6. Differentiate between inflationary and deflationary gap.Show deflationary gap on a diagram. Can this gap exists at equilibrium level of income? Explain

7. What is fiscal policy?How does the following affect AD in an economy : I) Changes in government expenditure II) Changes in tax rates.

8. Give the MPC=0.8 and investment at all levels of incomes is Rs. 40 crores, complete the following table 6 Income Consumption Saving investment AD AS=Y 0 100 200 300 400 500 600 60 -

ASSIGNMENT:9

CBSE BOARD EXAM QUESTIONS FROM LAST 5 YEARS

Chapter: Rural Development

1.   **Question:** Discuss the significance of microfinance in promoting rural development in India.
2.   **Question:** Explain the role of self-help groups (SHGs) in empowering rural women.

Chapter: Money and Banking

3.   **Question:** Define the money multiplier. How does it influence the money supply in an economy?
4.   **Question:** Describe the various instruments of monetary policy used by the Reserve Bank of India to control inflation.

Chapter: Determination of Income and Employment

5.   **Question:** Illustrate the concept of aggregate demand and aggregate supply in the determination of equilibrium income.
6.   **Question:** How does the marginal propensity to consume (MPC) affect the size of the multiplier in an economy?

ASSIGNMENT: 10

PROJECT WORK

PREPARE ONE PROJECT ON THE GUIDELINES SHARED:

- Choose a title
- Topic Collection of the research material
- Data Organization of material
- Data Present material
- Data analysing the material.
- Data for conclusion Draw the relevant conclusion
- Presentation of the

Project Work Expected Checklist:
- Introduction of topic/title
- Identifying the causes, consequences and/or remedies
- Various stakeholders and effect on each of them
- Advantages and disadvantages of situations or issues identified
- Short-term and long-term implications of economic strategies suggested in the course of research

• Validity, reliability, appropriateness and relevance of data used for research work and for presentation in the project file
• Presentation and writing that is succinct and coherent in project file
• Citation of the materials referred to, in the file in footnotes, resources.

TOPICS:

Class XII	
Micro and Small Scale Industries	• Food Supply Channel in India
Contemporary Employment situation in India	• Disinvestment policy of the government
Goods and Services Tax Act and its Impacton GDP	• Health Expenditure (of any state)
Human Development Index	• Inclusive Growth Strategy
Self-help group	• Trends in Credit availability in India
Monetary Policy Committee and its functions	• Role of RBI in Control of Credit
Government Budget & its Components	• Trends in budgetary condition of India
Exchange Rate determination – Methods andTechniques	• Currency War – reasons and repercussions
Livestock – Backbone of Rural India	• Alternate fuel – types and importance
Sarva Shiksha Abhiyan – Cost Ratio Benefits	• Golden Quadrilateral- Cost ratio benefit
Minimum Support Prices	• Relation between Stock Price Index andEconomic Health of a Nation
Waste Management in India – Need of thehour	• Minimum Wage Rate – Approach andApplication
Digital India- Step towards the future	• Rain Water Harvesting – A solution to watercrisis
Vertical Farming – An alternate way	• Silk Route- Revival of the past
Make in India – The way ahead	• Bumper Production- Boon or Bane for thefarmer
Rise of Concrete Jungle- Trend Analysis	• Organic Farming – Back to the Nature
Aatmanirbhar Bharat	• e-Rupee (e- ₹)
Sri Lanka's Economic Crisis	• Sustainable Development Goals (SDG's)
Environmental Crisis	• Comparative Study of Economies(Maximum three economies)
New Education Policy (NEP) 2020: APromise for a New Education System	• G-20: Inclusive and Action Oriented
Amrit Kaal: Empowered and InclusiveEconomy	• Cashless Economy
Any other newspaper article and its evaluation on basis of economic principles	• **Any other topic**

DARSHAN ACADEMY
Subject Enrichment Assignments - 2025
CLASS: ─ XII   SUBJECT: ENGLISH

_____

General Instructions:

- Submit your assignments in a neatly arranged file with a cover page and table of contents.
- Use A4 sheets and ensure that your handwriting or print is clear and legible.
- Make your work attractive by adding pictures, drawings, or simple borders.
- Complete the work on time and submit it on the first day after the summer vacation.

_____

TASK 1: NOTICE WRITING

Your school's **Literary Club** is organizing an **Inter-School Creative Writing Festival** titled *"Echoes of Literature: Voices Through Time."* As the **Secretary of the English Club**, draft a notice inviting students to participate. Include:

- Event details (date, time, venue)
- Categories (poetry, short stories, essays, reviews)
- Special sessions based on Grade 12 English syllabus (e.g., *"Reflections on Keeping Quiet"*,─ *The Voice of the Marginalized"*)
- Registration details

TASK 2: Case Based Passage

India Covid-19 numbers explained

1. With novel Coronavirus spreading rapidly all over the country, there are only three states right now, Meghalaya, Sikkim and Andaman and Nicobar Islands, that have less than 1,000 people infected with the disease.

2. Lakshadweep, of course, still hasn't reported even a single case till now, the only region in India entirely free of the epidemic.

3. Otherwise, even the relatively smaller states now have significantly large spread of the disease. Goa, for example, has seen more than 7,000 of its people infected by the virus till now. Tripura has over 5,500 cases, while Manipur has more than 3,000, and Nagaland a little less than 2,500. Puducherry has more than 4,000 cases, while even Daman and Diu has over 1,300 people infected.

4. And in each of these states, the numbers are rising at a fast pace, at a rate higher than the national level. The infections had initially reached these states in the first and second week of May, when the lockdown was relaxed for the first time to enable people stuck in different parts of the country to return to their native places.

5. After a period of very slow growth, the number of cases has begun to rise rapidly in the last one month. In Goa, for example, the total number of infected people has nearly doubled in the last 15 days. Same has happened in Puducherry, as well.

6. Tuesday was one of those rare occasions when the number of active cases in the country, those who are yet to recover from the disease, went down compared to the previous day. That is because the number of recoveries, combined with the number of deaths, exceeded the new cases that were detected on Tuesday.

The daily rise of COVID-19 cases in India
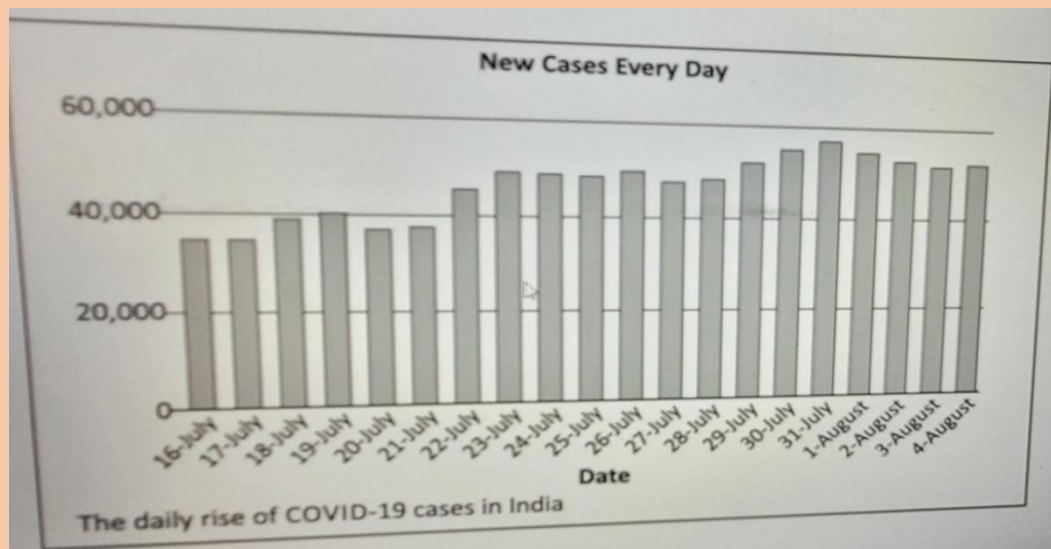
7. With over 52,500 new cases detected in the country, the total number of infections crossed 19 lakh, out of `which 12.82 lakh people have recovered from the disease. The number of dead is now close to 40,000.

8. The number of recoveries on Tuesday was the highest-ever for a single day. More than 51,700 people were declared to have been recovered. Three days earlier, the number of recoveries had crossed 50,000 for the first time, but in the next two days the number had fallen to much lower levels.

Choose the correct option to answer the questions based on the above passage and graphics. Do any ten.

(a) How are these three states – Meghalaya, Sikkim and Andaman and Nicobar Islands – different from the rest of India?
(i) they are the only states to have less than 1,000 people infected with novel coronavirus
(ii) they are three of the five states to have less than 1,000 people infected with novel coronavirus
(iii) they are the only states to have less than 2,000 people infected with novel coronavirus
(iv) none of these

(b) _____ is the only region in India which is entirely free of the epidemic.
(i) Andaman and Nicobar Islands
(ii) Maharashtra
(iii) Lakshadweep
(iv) Tripura

(c) What is common among Goa, Tripura, Manipur, Nagaland, Puducherry and Daman and Diu?
(i) the numbers are rising at a fast pace at rates lower than the national level
(ii) the numbers are falling at a fast pace at rates equal than the national level
(iii) the numbers are rising at a fast pace at rates higher than the national level
(iv) none of these

(d) Based on your understanding of the passage, choose the option that lists the inherent qualities of climate in the present times.
(i) 1 and 4
(ii) 2 and 6
(iii) 1 and 3
(iv) 3 and 5

(e) Which date in the graph shows the highest jump of detected cases in a day?
(i) July 30
(ii) July 31
(iii) August 1
(iv) August 2

(f) Of the 19 lakh infected cases, how many have recovered?
(i) 11.82 lakh
(ii) 13.82 lakh
(iii) 12.81 lakh
(iv) 12.82 lakh

(g) More than 51,700 people were declared to have been recovered on _____.
(i) Wednesday
(ii) Sunday
(iii) Tuesday
(iv) Monday

(h) When had the number of recoveries crossed 50,000 for the first time?
(i) two days earlier
(ii) Tuesday
(iii) three days earlier than Tuesday
(iv) none of these

(i) Which word in the passage means the same as "quickly"?
(i) rapidly
(ii) significantly
(iii) native
(iv) rare

(j) Which word in the passage is opposite in meaning to "indigenous"?
(i) rapidly
(ii) significantly
(iii) native
(iv) rare

<p style="text-align:center;">TASK 3: Factual Passage</p>

1. Too many parents these days can't say no. As a result, they find themselves raising 'children' who respond greedily to the advertisements aimed right at them. Even getting what they want doesn't satisfy some kids; they only want more. Now, a growing number of psychologists, educators and parents think it's time to stop the madness and start teaching kids about what's really important: values like hard work, contentment, honesty and compassion. The struggle to set limits has never been tougher and the stakes have never been higher. One recent study of adults who were overindulged as children, paints a discouraging picture of their future: when given too much too soon, they grow up to be adults who have difficulty coping with life's disappointments. They also

have distorted sense of entitlement that gets in the way of success in the work place and in relationships.

2. Psychologists say that parents who overindulge their kids, set them up to be more vulnerable to future anxiety and depression. Today's parents themselves raised on values of thrift and self-sacrifice, grew up in a culture where no was a household word. Today's kids want much more, partly because there is so much more to want. The oldest members of this generation were born in the late 1980s, just as PCs and video games were making their assault on the family room. They think of MP3 players and flat screen TV as essential utilities, and they have developed strategies to get them. One survey of teenagers found that when they crave for something new, most expect to ask nine times before their parents give in. By every measure, parents are shelling out record amounts. In the heat of this buying blitz, even parents who desperately need to say no find themselves reaching for their credit cards.

3. Today's parents aren't equipped to deal with the problem. Many of them, raised in the 1960s and '70s, swore they'd act differently from their parents and have closer relationships with their own children. Many even wear the same designer clothes as their kids and listen to the same music. And they work more hours; at the end of a long week, it's tempting to buy peace with 'yes' and not mar precious family time with conflict. Anxiety about future is another factor. How do well intentioned parents say no to all the sports gear and arts and language lessons they believe will help their kids thrive in an increasingly competitive world? Experts agree: too much love won't spoil a child. Too few limits will.

4. What parents need to find, is a balance between the advantages of an affluent society and the critical life lessons that come from waiting, saving and working hard to achieve goals. That search for balance has to start early. Children need limits on their behaviour because they feel better and more secure when they live within a secured structure. Older children learn self-control by watching how others, especially parents act. Learning how to overcome challenges is essential to becoming a successful adult. Few parents ask kids to do chores. They think their kids are already overburdened by social and academic pressures. Every individual can be of service to others, and life has meaning beyond one's own immediate happiness. That means parents eager to teach values have to take a long, hard look at their own.

(a) Answer the following:
(i) What values do parents and teachers want children to learn? 2
(ii) What are the results of giving the children too much too soon? 2
(iii) Why do today's children want more? 1
(iv) What is the balance which the parents need to have in today's world? 2
(v) What is the necessity to set limits for children? 2

(b) Pick out words from the passage that mean the same as the following: 3
(i) a feeling of satisfaction (para 1)
(ii) valuable (para 3)
(iii) important (para 4)

TASK 4: ARTICLE WRITING

Write an **article** for the school magazine on **"The Role of Literature in Shaping Society."**
Connect your discussion with themes from:

- *The Last Lesson* (importance of language and identity)
- *Lost Spring* (child labor and social injustice)

Use **examples from literature and real life** to support your arguments.

TASK 5: Reordering Jumbled words

a) the baby/four of us/ there were/including
b) the cold water/we went/in spite of /swimming
c) any/unlike/this problem is/faced before/ we have
d) getting out/upon/of the car/his leg/he broke
e) his head/put a pillow/the nurse/underneath

TASK 6: Formal Letter To The Editor

You are Aman/Aditi studying in Bharat School, Lucknow. The road leading to your school is very congested and full of potholes. Students and parents are often caught in a traffic jam. In spite of several representations, the government has not done anything to improve the condition of the road. Write a letter to the Editor of The Times of India, drawing the attention of the government to this problem.

OR

You are Sunil / Sunita, staying at Mayur Vihar, Delhi. Your locality being away from the main city, the poor bus-service adversely affects the life of the residents. Write a letter to the Editor of The Times of India, highlighting the problems faced, and also giving a few possible solutions.

TASK 7: Prose - (Word Limit: 100-150 words)

1. Imagine you run a motivational blog. Write a post on **"Overcoming Fear: Lessons from Deep Water"** encouraging readers to conquer their fears and face challenges with courage.

2. Imagine you are the **peddler** after leaving the ironmaster's house. Write a **continuation of the story**, exploring how the kindness shown to you changed your life.

3. Research about a real-life case of a child laborer who overcame hardships and achieved success. Write a **short case analysis** drawing comparisons with the experiences of Mukesh in *Lost Spring*.

4. Do you think language policies in a country should be strictly enforced, or should people have the freedom to choose their language of education? Express your views with arguments supporting both perspectives.

TASK 8: Poetry - (Word Limit: 100-150 words)

1. Read the following extract and answer the questions that follow:

"...but soon
put that thought away, and
looked out at Young
trees sprinting, the merry children spilling
out of their homes"

    a.   Why does the poet describe the trees as "sprinting"?

    b.   How does this imagery contrast with the poet's thoughts?

    c.   What does "merry children spilling out" symbolize in the context of the poem?

2. Create a visually appealing poster with a quote from *A Thing of Beauty* that highlights the theme of beauty as a source of joy and inspiration. Illustrate it with relevant drawings or digital images.

3. Design a social awareness advertisement promoting mindfulness and environmental consciousness. Use an engaging slogan and a brief message, linking it to the ideas in *Keeping Quiet*.

TASK 9: Supplementary Section

1. Read the following extract and answer the questions that follow:

"The third level was at Grand Central Station, and I have been there, yes, I have taken the obvious step: I have told my psychiatrist, friend, and he says it's a waking-dream wish fulfilment."

   i.   What does the psychiatrist mean by "waking-dream wish fulfilment"?
   ii.   How does this statement reflect Charley's state of mind?
  iii.   Do you think Charley actually travelled in time, or was it a psychological escape? Justify your answer.

2. Imagine you are Charley. Write a **diary entry** the night after discovering the third level at Grand Central Station. Express your emotions, excitement, and confusion about time travel and whether it was real or just a hallucination.

TASK 10: Creative Writing

"Mirror, Mirror: A Reflection on My Identity" -

Task: Write an introspective essay (to yourself 10 years from now) about what you see when you look in the mirror—not just your physical reflection, but your inner self. Explore how your experiences, beliefs, and dreams define you. - Encourages self-analysis and emotional depth.

OR

Write in 200 words where do you see yourself ten years from now. Give the complete insight in all aspects.

DARSHAN ACADEMY

Subject Enrichment Assignments - 2025
CLASS: -- XII   SUBJECT: MATHEMATICS

GENERAL INSTRUCTIONS:

- Submit your assignments in a neatly arranged file with a cover page and table of contents.
- Use A4 sheets and ensure that your handwriting or print is clear and legible.
- Make your work attractive by adding pictures, drawings, or simple borders.
- Complete the work on time and submit it on the first day after the summer vacation.

ASSIGNMENT 1: MATRICES

Q1 Find x and y if $x + y = \begin{bmatrix} 5 & 2 \\ 0 & 9 \end{bmatrix}$ and $x - y = \begin{bmatrix} 3 & 6 \\ 0 & -1 \end{bmatrix}$

Q2 If A= $\begin{vmatrix} 3 & -2 \\ 4 & -2 \end{vmatrix}$ I=$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ Find K, So that $A^2 = kA - 2I$

Q3 Find x and y, if $2x + 3y = \begin{bmatrix} 2 & 3 \\ 4 & 0 \end{bmatrix}$ and $3x + 2y = \begin{bmatrix} 2 & -2 \\ -1 & 5 \end{bmatrix}$

Q4 If A= $\begin{bmatrix} 1 & 2 & 3 \\ 3 & -2 & 1 \\ 4 & 2 & 1 \end{bmatrix}$ then show that $A^3 - 23A - 40I = 0$

Q5 For what values of x $\begin{bmatrix} 1 & 2 & 1 \end{bmatrix} \begin{bmatrix} 1 & 2 & 0 \\ 2 & 0 & 1 \\ 1 & 0 & 2 \end{bmatrix} \begin{bmatrix} 0 \\ 2 \\ x \end{bmatrix} = 0$

Q6 If A is a square matrix such that $A^2 = A$, then what is the value of $(I + A)^3 - 7A$

Q7 Express the matrix A= $\begin{bmatrix} 2 & -2 & -4 \\ 01 & 3 & 4 \\ 1 & -2 & -3 \end{bmatrix}$ as the sum of a symmetric and a skew symmetric matrix.

Q8 The cost of 4kg onion, 3kg wheat and 2kg rice is Rs. 60. The cost of 2kg onion, 4kg wheat and 6kg rice is Rs. 90. The cost of 6kg onion 2kg wheat and 3kg rice is Rs. 70. Find the cost of each item per kg by matrix method

ASSIGNMENT 2: DETERMINANT

Q1 If A= , $\begin{vmatrix} 1 & 2 & 1 \\ 1 & 0 & 3 \\ 2 & -3 & 0 \end{vmatrix}$ Find A^{-1}.

Using the above obtained inverse of matrix A, solve the following system of equations:
$x + 2y + z = 7$, $x + 3z = 11$, $2x - 3y = 1$

Q2 Find the product $\begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix} \begin{bmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{bmatrix}$.

Hence, solve the given system of equations: x – y = 3, 2x +3y+4z= 17 , y+2z =7

Q3 If A= $\begin{bmatrix} 1 & -1 \\ 2 & 1 \end{bmatrix}$ B= $\begin{bmatrix} 0 & 1 \\ 2 & 4 \end{bmatrix}$, C= $\begin{bmatrix} -1 & 2 \\ 1 & -4 \end{bmatrix}$ and AB – CD = 0 then, find the matrix D.

Q4 If A = $\begin{bmatrix} 2 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 4 \end{bmatrix}^{-1}$ then, find matrix A

Q5 If A, B and C are square matrices of order 3 and $|BC| = 2|A|$ then find $|2A^{-1}BC|$.

ASSIGNMENT 3: MATRICES AND DETERMINANT

Q1 Determine a matrix X such that 2A+ 3B +X = 0 , where A= $\begin{pmatrix} 3 & 2 \\ 1 & -5 \end{pmatrix}$ and B= $\begin{pmatrix} 7 & -2 \\ -5 & 4 \end{pmatrix}$

Q2 Find the values of x , y, z if the matrix A = $\begin{pmatrix} 0 & 2y & z \\ x & y & -z \\ x & -y & z \end{pmatrix}$ satisfies the equation A' = A $^{-1}$

Q3 If A = $\begin{bmatrix} 0 & 6 & 7 \\ -6 & 0 & 8 \\ 7 & -8 & 0 \end{bmatrix}$ B= $\begin{bmatrix} 0 & 1 & 1 \\ 1 & 0 & 2 \\ 1 & 2 & 0 \end{bmatrix}$, and C = $\begin{bmatrix} 2 \\ 2 \\ 3 \end{bmatrix}$, Then verify that (A + B) C = AC + BC

Q4 If A = $\begin{bmatrix} 3 & 1 \\ 7 & 5 \end{bmatrix}$, Then find (x + y) so that A^2 – x I + y A = 0. Hence find A $^{-1}$

Q5 If A $^{-1}$ = $\begin{bmatrix} 3 & -1 & 1 \\ -15 & 6 & -5 \\ 5 & -2 & 2 \end{bmatrix}$ and B= $\begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$, find (AB) $^{-1}$

ASSIGNMENT 4: MATRICES AND DETERMINANT
VERY SHORT QUESTIONS

Q1 The number of all possible matrices of order 3 × 3 with each entry 0 or 1 is _____

Q2. The number of all possible matrices of order 2 × 2 with each entry 0, 1 or 2 is _____

Q3. If A is a square matrix such that $A^2 = I$, then $(A − I)^3 + (A + I)^3 − 7A =$ _____

Q4 If A is an invertible matrix of order 3 and $|A| = 5$, then find the value of $|adj\ A|$

Q5 If A and B are square matrices of order 3 each, $|A| = 2$ and $|B| = 3$ find $|3AB|$

Q6 . If A is a square matrix of order 3 such that $|Adj\ A| = 64$. Find $|A^T|$.

Q7 Using matrix method, solve the system of equations:
$2x - 3y + 5z = 11,\quad 3x + 2y - 4z = -5,\quad x + y - 2z = -3$

Q8 Using matrices, solve the following system of equations :
$2x - y - z = 7,\quad 3x + y - z = 7,\quad x + y - z = 3$

ASSIGNMENT 5: INVERSE TRIGONOMETRY
SHORT QUESTIONS

Q1 Find the domain of f(x)=$\sin^{-1}$(3x- 4)+$\cos^{-1}$x. Also , find the range of f(x)

Q2 Draw the graph of y=$\cos^{-1}$x, where x€ $[-1, \frac{1}{2}]$. Also write its range.

Q3 Prove that $\frac{9\Pi}{8} - \frac{9}{4} \sin^{-1} \frac{1}{3} = \frac{9}{4} \sin^{-1} (\frac{2\sqrt{2}}{3})$

Q4 Find the principal value of $\cos^{-1}(-\frac{1}{2})$

Q5 Find the principal value of $\cot^{-1} (-\sqrt{3})$

ASSIGNMENT 6: CONTINUITY

Q1 Discuss the continuity of function f(x)= $\begin{cases} x+2, & \text{if } x< 1 \\ 0, & \text{if } x=1 \\ x-2, & \text{if } x>1 \end{cases}$

Q2 check the continuity of the function f(x)=$\begin{cases} x^2+1, & \text{if } x\leq 2 \\ 3x-1, & \text{if } x>2 \end{cases}$ at x=2

Q3 Prove that the function f(x)=|x−2| is continuous but not differentiable at x=2.

Q4 Show that the function defined by F(x) = $\begin{cases} x \sin (1/x), & x\neq 0 \\ 0, & x=0 \end{cases}$ is continuous at x = 0.

Q5 Discuss the continuity of f(x)=1/x-3 at x=3.

ASSIGNMENT 7: DIFFERENTIABILITY

Q1 Differentiate $\sqrt{\tan\sqrt{x}}$ w.r.t x

Q2 If y= x^x , then prove that $d^2y/dx^2 - 1/y\ (dy/dx)^2 - y/x = 0$

Q3 If x= cost +log tan (t/2), y=sin t, then find the value of d^2y/dt^2 and d^2y/dx^2 both, at t= $\pi/4$

Q4 Find the derivative of $f(e^{tanx})$ w.r.t. x at x= 0. It is given that f(1)=5

Q5 If $e^y(x+1) =1$. show that $\frac{dy}{dx}= - e^y$

Q6 Differentiate sin^2x w.r.t e^{cosx}

ASSIGNMENT 8: APPLICATION OF DERIVATIVES
SHORT QUESTIONS

Q1 The volume of a sphere is increasing at the rate of $3cm^3$/s. Find the rate of increase of its surface area when the radius is 2cm?

Q2 The radius r of a right circular cylinder is decreasing at the rate of 3cm/min and its height h is increasing at the rate of 2cm/min. When r = 7cm and h = 2cm, find the rate of change of volume of cylinder. (use $\pi=22/7$)

Q3 If the side of a cube be increased by 0.1%, find the corresponding increase in the volume of the cube

Q4 The sides of an equilateral triangle are increasing at the rate of 2 cm/s. Find the rate at which the area increases, when side is 10 cm.

Q5 Show that the function f(x) =4 x^3 – $18x^2$ + 27x – 7 is always increasing on R.

Q6 Find the interval in which $y=x^2.e^{-x}$ is increasing.

ASSIGNMENT 9: APPLICATION OF DERIVATIVES
LONG QUESTIONS

Q1 A Spherical ball of salt is dissolving in water in such a manner that the rate of decrease of volume at any instant is proportional to the surface. Prove that the radius is decreasing at a constant rate.

Q2 Find the interval in which the function f given by $f(x)=4x^3- 6x^2- 72x+ 30$ is
(a) increasing   (b) decreasing.

Q3 Find the interval in which the function given by f(x)= sinx+cosx, $0 \le x \le 2\pi$ is increasing or decreasing

Q4 Show that the rectangle of maximum area, that can be inscribed in a circle of radius r is a square of side √2r

Q5 The sum of the perimeter of the circle and a square is k, where k is some constant. Prove that the sum of their areas is least when the side of the square is double the radius of the circle.

Q6 A window is in the form of a rectangle surmounted by a semicircular opening. The total perimeter of the window is 10 m. Find the dimensions of the window to admit maximum light through the whole opening.

Q7 Prove that the volume of the largest cone that can be inscribed in a sphere of radius R is 8/27 of the volume of the sphere.

ASSIGNMENT 10: PROJECT WORK

Q1 Learn and write all the trigonometric formulas.

Q2 Do Activity on the following topics in your activity file:-
Activity-1
Objective: To verify that the relation R in the set L of all lines in a plane, defined by R = {(l, m) : l ⊥ m} is symmetric but neither reflexive nor transitive.

Activity-2
Objective: To demonstrate a function which is not one-one but is onto.

Activity-3
Objective: To explore the principal value of the function $\sin^{-1}x$ using a unit circle

Activity-4
Objective: To construct an open box of maximum volume from a given rectangular sheet by cutting equal squares from each corner.

Q3 Do all the examples of matrices, determinants, inverse trigonometry and continuity and differentiability in your   class notebook.

DARSHAN ACADEMY
Subject Enrichment Assignments - 2025
CLASS: — XII   SUBJECT: PHYSICAL EDUCATION

General Instructions:

- Submit your assignments in a neatly arranged file with a cover page and table of contents.
- Use A4 sheets and ensure that your handwriting or print is clear and legible.
- Make your work attractive by adding pictures, drawings, or simple borders.
- Complete the work on time and submit it on the first day after the summer vacation.

Project work

The students are required to undertake one compulsory project during this academic year as per CBSE guidelines. The project would involve the use of different methods of enquiry and related skills. The objective of this project is to familiarize the students with:

- Practical-1.write 5 SAI KHELO FITNESS INDIA Test for age group 4-12 year also perform these test and collect the data.

- Practical-2 Procedure of Asanas, benefits and contraindications for any two asanas for lifestyle diseases. Draw a stick diagram of all the asanas.
Also perform asanas week wise.
Week 1. Perform asanas for obesity
Week 2. Perform asanas for Hypertension
Week 3. Perform asanas for Asthma
Week 4. Perform asanas for Diabetes

- Practical -3 Find out any one game/sport IOA recognized of your choice and research
Following topics:
a. History of the game
b . Fundamental skills
c. Terminologies
d . Famous players and awards
e . court/ground specifications
f Rules and Regulations
g. Equipments

Art Integrated

Make a poster on exercise performed by:
1.Early childhood
2.Middle childhood
3.Later childhood
4.Adolescent (any one)

General Instructions:

- Submit your assignments in a neatly arranged file with a cover page and table of contents.
- Use A4 sheets and ensure that your handwriting or print is clear and legible.
- Make your work attractive by adding pictures, drawings, or simple borders.
- Complete the work on time and submit it on the first day after the summer vacation.

WORKSHEET-1
CLASS-XII   SUB: PHYSICS   ELECTROSTATICS MCQs

1 The surface considered for Gauss's law is called
(a) Closed surface
(b) Spherical surface
(c) Gaussian surface
(d) Plane surface

2 The total flux through the faces of the cube with side of length a if a charge q is placed at corner A of the cube is
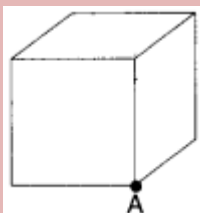
(a) $\dfrac{q}{8\varepsilon_0}$ (b) $\dfrac{q}{4\varepsilon_0}$

(c) $\dfrac{q}{2\varepsilon_0}$ (d) $\dfrac{q}{\varepsilon_0}$

3. Which of the following statements is not true about Gauss's law?
(a) Gauss's law is true for any closed surface.
(b) The term q on the right side of Gauss's law includes the sum of all charges enclosed by the surface.
(c) Gauss's law is not much useful in calculating electrostatic field when the system has some symmetry.
(d) Gauss's law is based on the inverse square dependence on distance contained in the coulomb's law

4. A charge Q is placed at the centre of the line joining two point charges +q and +q as shown in the figure. The ratio of charges Q and q is
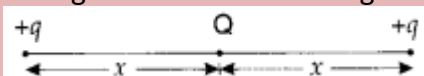
(a) 4
(b) 1/4
(c) -4

(d) -1/4

5. The force per unit charge is known as
(a) electric flux
(b) electric field
(c) electric potential
(d) electric current

6. Electric field lines provide information about
(a) field strength
(b) direction
(c) nature of charge
(d) all of these

7. Which of the following figures represent the electric field lines due to a single negative charge?
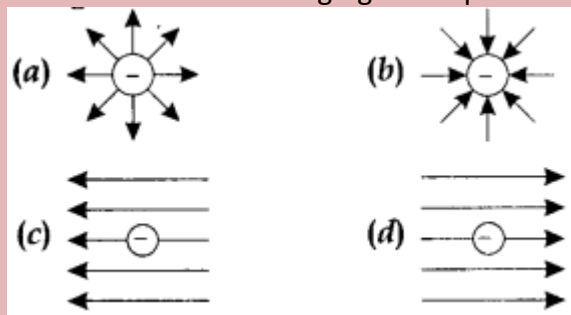
8. The SI unit of electric flux is
(a) N C^{-1} m^{-2}
(b) N C m^{-2}
(c) N C^{-2} m^2
(d) N C^{-1} m^2

9. The unit of electric dipole moment is
(a) newton
(b) coulomb
(c) farad
(d) debye

10. Consider a region inside which, there are various types of charges but the total charge is zero. At points outside the region
(a) the electric field is necessarily zero.
(b) the electric field is due to the dipole moment of the charge distribution only.
(c) the dominant electric field is inversely proportional to r3, for large r (distance from ori-gin).
(d) the work done to move a charged particle along a closed path, away from the region will not be zero.

11. SI unit of permittivity of free space is
(a) Farad
(b) Weber
(c) C^2N^{-1} m^{-2}
(d) C^2N^{-1} m^{-2}

12. Which of the following statement is true?

(a) Electrostatic force is a conservative force.
(b) Potential at a point is the work done per unit charge in bringing a charge from any point to infinity.
(c) Electrostatic force is non-conservative
(d) Potential is the product of charge and work.

13. 1 volt is equivalent to

(a) $\dfrac{newton}{second}$

(b) $\dfrac{newton}{coulomb}$

(c) $\dfrac{joule}{coulomb}$

(d) $\dfrac{joule}{second}$

14. The work done in bringing a unit positive charge from infinite distance to a point at distance x from a positive charge Q is W. Then the potential at that point is

(a) $\dfrac{WQ}{x}$

(b) W

(c) $\dfrac{W}{x}$

(d) WQ

15. Consider a uniform electric field in the z-direction. The potential is a constant
(a) for any x for a given z
(b) for any y for a given z
(c) on the x-y plane for a given z
(d) all of these

16. Equipotential surfaces
(a) are closer in regions of large electric fields compared to regions of lower electric fields.
(b) will be more crowded near sharp edges of a conductor.
(c) will always be equally spaced.
(d) both (a) and (b) are correct.

17. In a region of constant potential
(a) the electric field is uniform.
(b) the electric field is zero.
(c) there can be no charge inside the region.
(d) both (b) and (c) are correct.

18. A test charge is moved from lower potential point to a higher potential point. The potential energy of test charge will
(a) remain the same
(b) increase
(c) decrease
(d) become zero

19. An electric dipole of moment $\vec{p}$ is placed in a uniform electric field $\vec{E}$. Then
(i) the torque on the dipole is $\vec{p} \times \vec{E}$
(ii) the potential energy of the system is $\vec{p} \cdot \vec{E}$
(iii) the resultant force on the dipole is zero. Choose the correct option.
(a) (i), (ii) and (iii) are correct
(b) (i) and (iii) are correct and (ii) is wrong
(c) only (i) is correct
(d) (i) and (ii) are correct and (iii) is wrong

3

20. If a conductor has a potential V ≠ 0 and there are no charges anywhere else outside, then
(a) there must be charges on the surface or inside itself.
(b) there cannot be any charge in the body of the conductor.
(c) there must be charges only on the surface.
(d) both (a) and (b) are correct.

WORKSHEET-2

ELETROSTATICS Very Short and Short Answer Questions (2 & 3 Marks)

1 Which orientation of an electric dipole in a uniform electric field would correspond to stable equilibrium?

2 If the radius of the Gaussian surface enclosing a charge is halved, how does the electric flux through the Gaussian surface change?

3. Define the term electric dipole moment of a dipole. State its S.I. unit.

4. In which orientation, a dipole placed in a uniform electric field is in

i)Stable ii) unstable equilibrium?

5 A charge 'q' is placed at the centre of a cube of side l. What is the electric flux passing through each face of the cube?

6 Depict the direction of the magnetic field lines due to a circular current carrying loop.

7 Find the expression for the work done on an electric dipole of dipole moment p in turning it from its position of stable equilibrium to a position of unstable equilibrium in a uniform electric field E.

8 What is the electric flux through a cube of side 1 cm which encloses an electric dipole?

9 A 500 µC charge is at the centre of a square of side 10 cm. Find the work done in moving a charge of 10 µC between two diagonally opposite points on the square.

10 A point charge Q is placed at point O as shown in the figure. Is the potential difference $V_A − V_B$ positive negative or zero if Q is
(i)positive
(ii)negative?
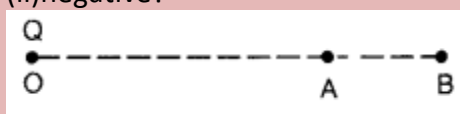
11 Two charges 2µC and – 2µC are placed at points A and B 5 cm apart. Depict an equipotential surface of the system.

12 For any charge configuration, equipotential surface through a point is normal to the electric field." Justify.

13 Two equal balls having equal positive charge 'q' coulumbs are suspended by two insulating strings of equal length. What would be the effect on the force when a plastic sheet is inserted between the two?

14 The given graph shows variation of charge 'q' versus potential difference 'V' for two capacitors C_1 and C_2. Both the capacitors have same plate separation but plate area of C_2 is greater than that

4

of C$_1$. Which line (A or B) corresponds to C$_1$ and why?
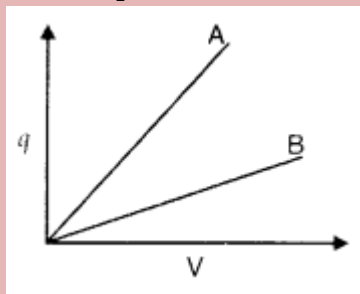
15 Derive the expression for the electric potential at any point along the axial line of an electric dipole.

16 Derive an expression for the potential energy of an electric dipole of dipole movement $\vec{p}$ in the electric field $\vec{E}$

17 Two-point charges, $q_1 = 10 \times 10^{-8}$C, $q_2 = -2 \times 10^{-8}$C are separated by a distance of 60 cm in air.
(i) Find at what distance from the 1st charge, q_1 would the electric potential be zero.
(ii) Also calculate the electrostatic potential energy of the system.

18 Calculate the work done to dissociate the system of three charges placed on the vertices of a triangle as shown.

19 Draw 3 equipotential surfaces corresponding to a field that uniformly increases in magnitude but remains constant along Z-direction. How are these surfaces different from that of a constant electric field along Z-direction?

20 Two small identical electrical dipoles AB and CD, each of dipole moment 'p' are kept at an angle of 120° as shown in the figure. What X' is the resultant dipole moment of this combination? If this system is subjected to electric field (E→) directed along + X direction, what will be the magnitude and direction of the torque acting on this?
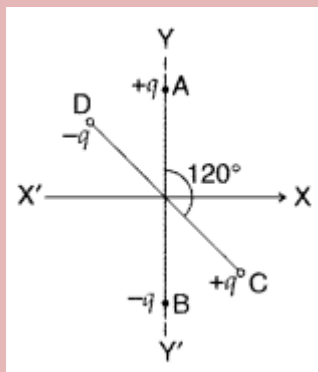
WORKSHEET-3

LONG ANS QUESTIONS ELECTROSTATICS

1 State 'Gauss law' in electrostatics. Use this law to derive an expression for the electric field due to an infinitely long straight wire of linear charge density λ cm^{-1}

2 Use Gauss's law to derive the expression for the electric field between two uniformly charged large parallel sheets with surface charge densities a and -a respectively.

3 a) Define electric flux. Write its S.I. units.
(b) Consider a uniform electric field
E→ = 3×10^3 i^ N/C. Calculate the flux of this field through a square surface of area 10 cm^2 when

(i) its plane is parallel to the y-z plane, and
(ii) the normal to its plane makes a 60° angle with the x-axis.

4 Two-point charges + q and -2q are placed at the vertices 'B' and 'C' of an equilateral triangle ABC of side as given in the figure. Obtain the expression for (i) the magnitude and (ii) the direction of the resultant electric field at the vertex A due to these two charges.
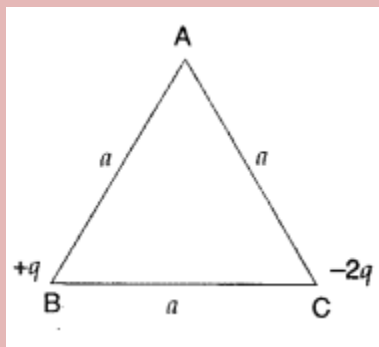
5 An electric dipole of dipole moment p→ is placed in a uniform electric field E→?. Obtain the expression for the torque experienced by the dipole. Identify two pairs of perpendicular vectors in the expression.

6 a) Two spherical conductors of radii Ra and R2 ($R_2 > R_1$) are charged. If they are connected by a conducting wire, find out the ratio of the surface charge densities on them.
(b) A steady current flows in a metallic conductor of non-uniform cross-section. Which of these quantities is constant along the conductor current, current density, electric field, drift speed?

7 A charge is distributed uniformly over a ring of radius 'a'. Obtain an expression for the electric intensity E at a point on the axis of the ring. Hence show that for points at large distances from the ring, it behaves like a point charge.

8 Derive the expression for electric field at a point on the equatorial line of an electric dipole.
(ii) Depict the orientation of the dipole in
(a) stable,
(b) unstable equilibrium in a uniform electric field.

9 Define electric flux. Write its SI units.
(b) The electric field components due to a charge inside the cube of side 0.1 m are as shown :
$E_x = ax$, where $\alpha = 500$ N/C^{-m}
$E_y = 0,$ $E_z = 0.$
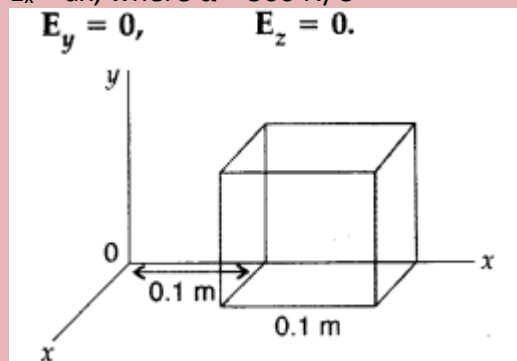
10 Define electric dipole moment. Is it a scalar or a vector? Derive the expression for the electric field of a dipole at a point on the equatorial plane of the dipole.

HOLIDAY HOMEWORK CLAS-XII SUB PHYSICS CURRENT ELECTRICITY MCQs

1. An electric heater is connected to the voltage supply. After few seconds, current gets its steady value then its initial current will be
(a) equal to its steady current
(b) slightly higher than its steady current
(c) slightly less than its steady current
(d) zero

2. In the series combination of two or more than two resistances
(a) the current through each resistance is same.
(b) the voltage through each resistance is same.
(c) neither current nor voltage through each resistance is same.
(d) both current and voltage through each resistance are same.

3. Combine three resistors 5 Q, 4.5 Q and 3 Q in such a way that the total resistance of this combination is maximum
(a) 12.5 Q
(b) 13.5 Q
(c) 14.5 Q
(d) 16.5 Q

4. A cell having an emf E and internal resistance r is connected across a variable external resistance R. As the resistance R is increased, the plot of potential difference V across R is given by
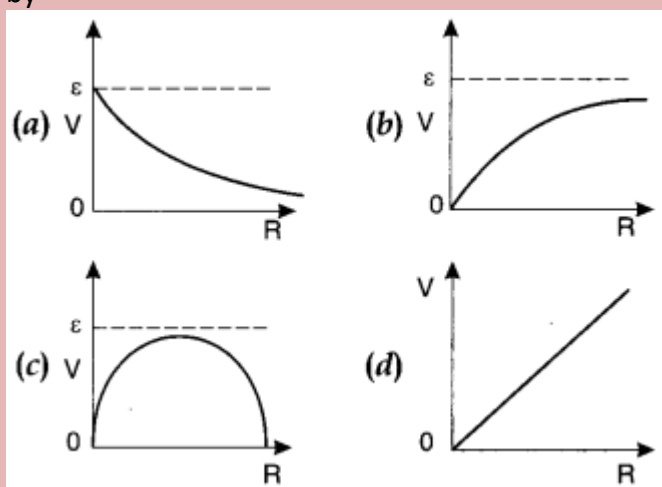
5. In parallel combination of n cells, we obtain
(a) more voltage
(b) more current
(c) less voltage
(d) less current

6. If n cells each of emf e and internal resistance r are connected in parallel, then the total emf and internal resistance will be
(a) $\varepsilon, \dfrac{r}{n}$ (b) ε, nr
(d) $n\varepsilon, \dfrac{r}{n}$ (d) $n\varepsilon, nr$

7. In a Wheatstone bridge if the battery and galvanometer are interchanged then the deflection

in galvanometer will
(a) change in previous direction
(b) not change
(c) change in opposite direction
(d) none of these.

8. When a metal conductor connected to left gap of a meter bridge is heated, the balancing point
(a) shifts towards right
(b) shifts towards left
(c) remains unchanged
(d) remains at zero

9. In a potentiometer of 10 wires, the balance point is obtained on the 7th wire. To shift the balance point to 9th wire, we should
(a) decrease resistance in the main circuit.
(b) increase resistance in the main circuit.
(c) decrease resistance in series with the cell whose emf is to be measured.
(d) increase resistance in series with the cell whose emf is to be determined.

10. A charge is moving across a junction, then
(a) momentum will be conserved.
(b) momentum will not be conserved.
(c) at some places momentarily will be conserved and at some other places momentum will not be conserved.
(d) none of these.

11. Which of the following I-V graph represents ohmic conductors?
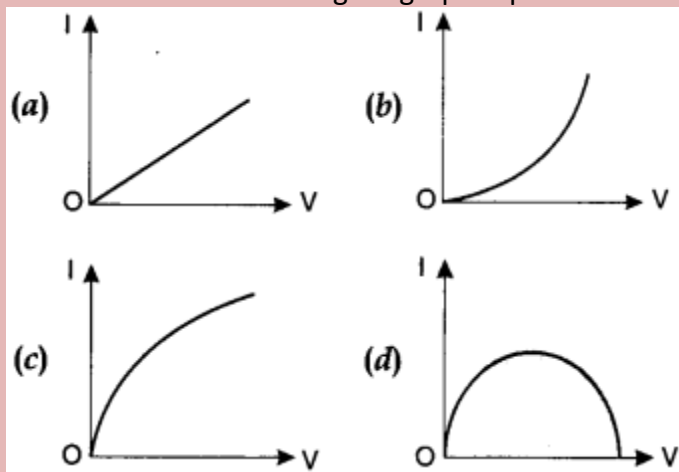
12. The I-V characteristics shown in figure represents
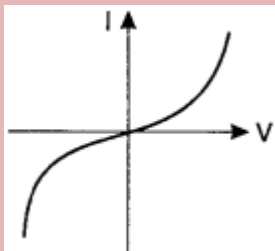
(a) ohmic conductors
(b) non-ohmic conductors
(c) insulators
(d) superconductors

13. Which of the following is correct for V-I graph of a good conductor?
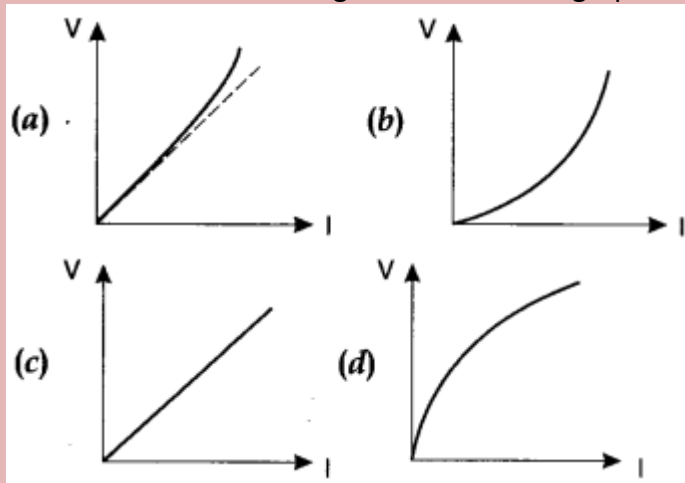
14. The resistivity of alloy manganin is
(a) Nearly independent of temperature
(b) Increases rapidly with increase in temperature
(c) Decreases with increase in temperature
(d) Increases rapidly with decrease in temperature

WORKSHEET-5
CURRENT ELECTRICITY SHORT ANS QUESTIONS (2 & 3 Marks)

1 The plot of the variation of potential difference across a combination of three identical cells in series, versus current is as shown in the figure. What is the emf of each cell? (Delhi 2008)
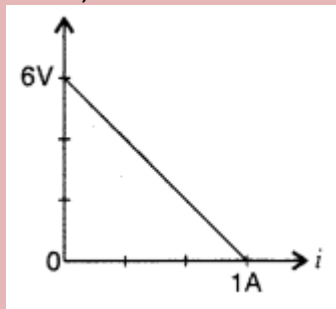
2 A wire of resistance 8R is bent in the form of a circle. What is the effective resistance between the ends of a A diameter 2AB?
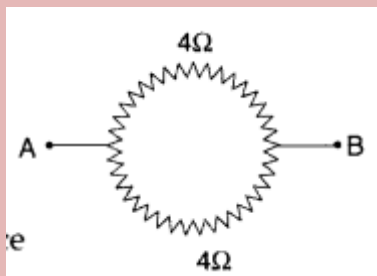
3.Two conducting wires X and Y of same diameter across a battery. If the number density of electro in X is twice that in Y, find the ratio of drift velocity of electrons in the two wires.

 4.A resistance R is connected across a cell of emf ε and internal resistance r. A potentiometer now measures the potential difference between the terminals of the cell as V. write the expression for 'r' in terms of ε, V and R.

 5. When electrons drift in a metal from lower to higher potential, does it mean that all the free

electrons of the metal are moving in the same direction?

6.Show on a graph the variation of resistivity with temperature for a typical semiconductor.

7.Two wires of equal length, one of copper and the other of manganin have the same resistance. Which wire is thicker?

8.A 10 v battery of negligible internal resistance is connected across a 200 V battery and a resistance of 38Ω as shown in the figure. Find the value of the current in circuit.
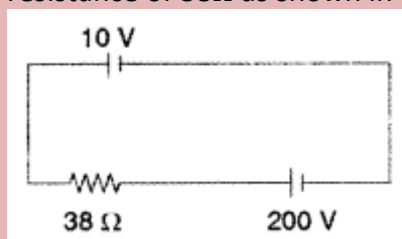
9.A 5 V battery of negligible internal resistance is connected across a 200 V battery and a resistance of 39 Ω as shown in the figure. Find the value of the current
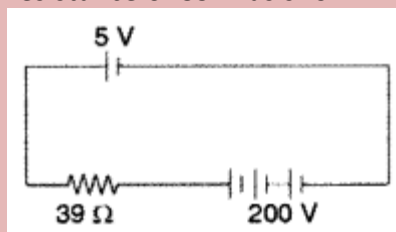
10.The emf of a cell is always greater than its terminal voltage. Why? Give reason.
11.A cell of emf 'E' and internal resistance 'r' draws a current 'I'. Write the relation between terminal voltage 'V' in terms of E, I and r.

12. Two identical cells, each of emf E, having negligible internal resistance, are connected in parallel with each other across an external resistance R. What is the current through this resistance?

13.Why is the terminal voltage of a cell less than its emf?

14.Two students A and B were asked to pick a resistor of 15 kΩ from a collection of carbon resistors. A picked a resistor with bands of colours brown, green, orange while B chose a resistor with bands of black, green, red. Who picked the correct resistor?

15.Define the term 'Mobility' of charge carriers in a conductor. Write its S.I. unit.

16.Show variation of resistivity of copper as a function of temperature in a graph
.
17.Define the term 'electrical conductivity' of a metallic wire. Write its S.I. unit.

18.Define the term 'drift velocity' of charge carriers in a conductor and write its relationship with the current flowing through it.

19.How does the random motion of free electrons in a conductor get affected when a potential difference is applied across its ends?

20.Write the expression for the drift velocity of charge carriers in a conductor of length L across

which a potential difference 'V' is applied.

21. How does one explain increase in resistivity of a metal with increase of temperature? resistivity increases, as x decreases with increase in temperature.

22. I - V graph for a metallic wire at two different temperatures, T_1 and T_2 is as shown in the figure. Which of the two temperatures is lower and why?

23. The plot of the variation of potential difference A across a combination of three identical cells in series, versus current is shown along the question. What is the emf and internal resistance of each cell?
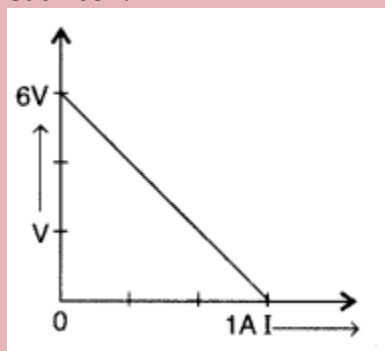
24. Why is a potentiometer preferred over a voltmeter for determining the emf of a cell?

25. Nichrome and copper wires of same length and same radius are connected in series. Current I is passed through them. Which wire gets heated up more? Justify your answer.

26. Define the conductivity of a conductor. Write its SI unit.

WORKSHEEET-6
Current Electricity Class 12 Important Questions Short Answer Type I

1. Two metallic wires of the same material have the same length but cross-sectional area is in the ratio 1: 2. They are connected
(i) in series and
(ii) in parallel.
Compare the drift velocities of electrons in the two wires in both the cases (i) and (ii).

2. Derive an expression for the resistivity of a good conductor, in terms of the relaxation time of electrons.

3. Using the mathematical expression for the conductivity of a material, explain how it varies with temperature for
(i) semiconductors,
(ii) good conductors.

4. A cell of emf 'E' and internal resistance V is connected across a variable resistor 'R'. Plot a graph showing the variation of terminal potential 'V' with resistance R.
Predict from the graph the condition under which 'V' becomes equal to 'E'.

5. Derive an expression for drift velocity of free electrons in a conductor in terms of relaxation time.

6.Calculate the current drawn from the battery in the given network.
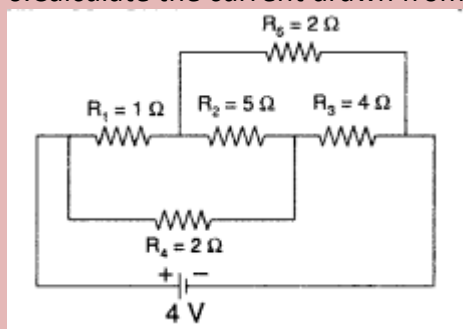
7.A wire of 15 Ω resistance is gradually stretched to double its original length. It is then cut into two equal parts. These parts are then connected in parallel across a 3volt battery. Find the current drawn from the battery.

8.A wire of 20 Ω resistance is gradually stretched to double its original length. It is then cut into two equal parts. These parts are then connected in parallel across a 4volt battery. Find the current drawn from the battery.

9.In the given circuit, assuming point A to be at zero potential, use Kirchhoff's rules to determine the potential A at point B.
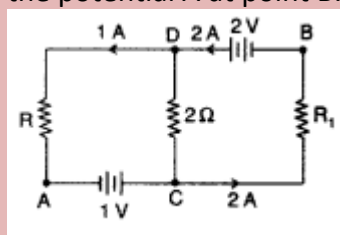
10. In the meter bridge experiment, balance point was observed at J with AJ = l.
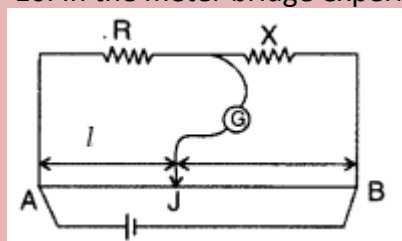
(i) The values of R and X were doubled and then interchanged. What would be the new position of balance point?
(ii) If the galvanometer and battery are interchanged at the balance position, how will the balance point get affected?

11.A cell of emf E and internal resistance r is connected to two external resistances R_1 and R_2 and a perfect ammeter. The current in the circuit is measured in four different situations:
(i) without any external resistance in the circuit
(ii) with resistance R_2 only
(iii) with R_1 and R_2 in series combination
(iv) with R_1 and R_2 in parallel combination
The currents measured in the four cases are 0.42A, 1.05A, 1.4A and 4.2A, but not necessarily in that order. Identify the currents corresponding to the four cases mentioned above.

12.A battery of emf 10 V and internal resistance 3Ω is connected to a resistor. If the current in the circuit is 0.5 A, find

(i) the resistance of the resistor;
(ii) the terminal voltage of the battery.

13.A battery of emf 6 V and internal resistance 2Ω is connected to a resistor. If the current in the circuit is 0.25 A, find
(i) the resistance of the resistors;
(ii) the terminal voltage of the battery.

14.The network PQRS, shown in the circuit diagram, has the batteries of 4 V and 5 V and negligible internal resistance. A milliammeter of 20 Ω resistance is connected between P and R. Calculate the reading in the milliammeter.
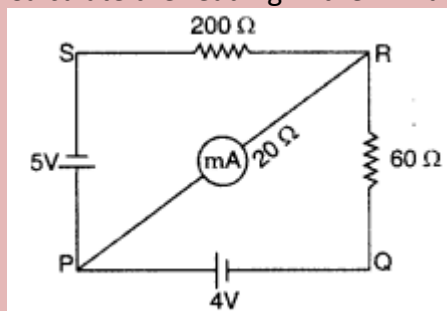
15.The network PQRS, shown in the circuit diagram, has the batteries of 5 V and 10 V and negligible internal resistance. A milliammeter of 50Ω resistance is connected between P and R. Calculate the reading in the milliammeter.
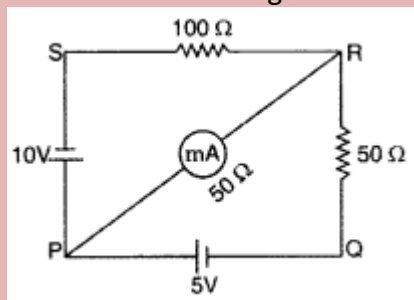
WORKSHEET-7
MAGNETIC EFFECTS OF CURRENT MCQs
1. If an electron is moving with velocity $\vec{v}$ produces a magnetic field $\vec{B}$ then
(a) the direction of field $\vec{B}$ will be same as the direction of velocity $\vec{v}$.
(b) the direction of field $\vec{B}$ will be opposite to the direction of velocity $\vec{v}$.
(c) the direction of field $\vec{B}$ will be perpendicular to the direction of velocity $\vec{v}$.
(d) the direction of field $\vec{B}$ does not depend upon the direction of velocity $\vec{v}$.

2. Current flows through uniform, square frames as shown in the figure. In which case is the magnetic field at the centre of the frame not zero?

(a)   (b)
(c)   (d)
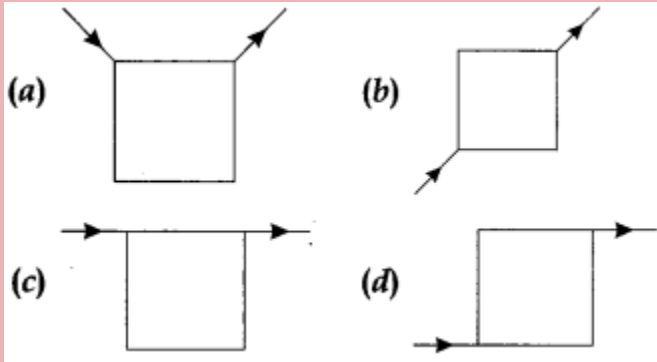
3. A charged particle is moving on circular path with velocity v in a uniform magnetic field B, if the velocity of the charged particle is doubled and strength of magnetic field is halved, then radius becomes
(a) 8 times
(b) 4 times
(c) 2 times
(d) 16 times

4. Two a-particles have the ratio of their velocities as 3 : 2 on entering the field. If they move in different circular paths, then the ratio of the radii of their paths is
(a) 2 : 3
(b) 3 : 2
(c) 9 : 4
(d) 4 : 9

5. Ampere's circuital law is given by

(a) $\oint \vec{H}.\vec{dl} = \mu_0 I_{enc}$ (b) $\oint \vec{B}.\vec{dl} = \mu_0 I_{enc}$

(c) $\oint \vec{B}.\vec{dl} = \mu_0 J$ (d) $\oint \vec{H}.\vec{dl} = \mu_0 J$

6. Two identical current carrying coaxial loops, carry current I in opposite sense. A simple amperian loop passes through both of them once. Calling the loop as C, then which statement is correct?

(a) $\oint_c \vec{B}.\vec{dl} = \pm 2\mu_0 I$

(b) the value of $\oint_c \vec{B}.\vec{dl}$ is independent of sense of C.

(c) there may be a point on C where B and dl are parallel.
(d) none of these

7. The correct plot of the magnitude of magnetic field $\vec{B}$ vs distance r from centre of the wire is, if the radius of wire is R
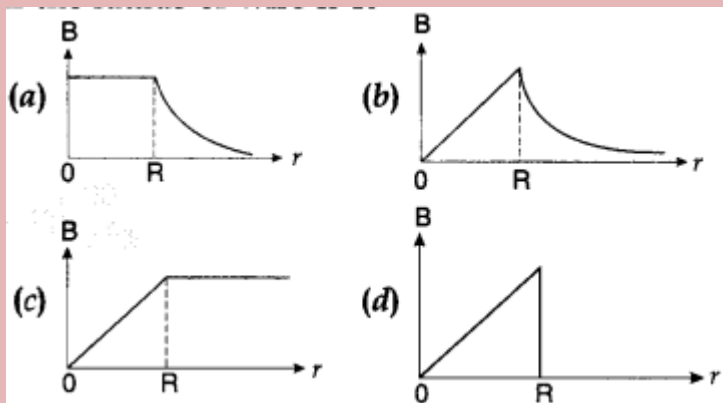
8. The nature of parallel and anti-parallel currents are
(a) parallel currents repel and antiparallel currents attract.
(b) parallel currents attract and antiparallel cur-rents repel.
(c) both currents attract. '
(d) both currents repel.

9. The magnetic moment of a current I carrying circular coil of radius r and number of turns N varies as
(a) $1r^2$
(b) $1r$
(c) r
(d) r^2

10. A short bar magnet has a magnetic moment of 0. 65 J T^{-1}, then the magnitude and direction of the magnetic field produced by the magnet at a distance 8 cm from the centre of magnet on the axis is
(a) 2.5 × 10^{-4} T, along NS direction
(b) 2.5 × 10^{-4} T along SN direction
(c) 4.5 × 10^{-4} T, along NS direction
(d) 4.5 × 10^{-4} T, along SN direction

11. A current carrying loop is placed in a uniform magnetic field. The torqe acting on it does not depend upon
(a) area of loop
(b) value of current
(c) magnetic field
(d) None of these

12. In a moving coil galvanometer, the deflection (Φ) on the scale by a pointer attached to the spring is

(a) $\left(\dfrac{NA}{kB}\right) I$ (b) $\left(\dfrac{N}{kAB}\right) I$

(c) $\left(\dfrac{NAB}{k}\right) I$ (d) $\left(\dfrac{NAB}{kI}\right).$

13. A moving coil galvanometer can be converted into an ammeter by
(a) introducing a shunt resistance of large value in series.
(b) introducing a shunt resistance of small value in parallel.

(c) introducing a resistance of small value in series.
(d) introducing a resistance of large value in parallel.

14. The conversion of a moving coil galvanometer into a voltmeter is done by
(a) introducing a resistance of large value in series.
(b) introducing a resistance of small value in parallel.
(c) introducing a resistance of large value in parallel.
(d) introducing a resistance of small value in series.

15. When a magnetic compass needle is carried nearby to a straight wire carrying current, then
(I) the straight wire cause a noticeable deflection in the compass needle.
(II) the alignment of the needle is tangential to an imaginary circle with straight wire as its centre and has a plane perpendicular to the wire
(a) (I) is correct
(b) (II) is correct
(c) both (I) and (II) are correct
(d) neither (I) nor (II) is correct

16. A strong magnetic field is applied on a stationary electron. Then the electron
(a) moves in the direction of the field.
(b) remained stationary.
(c) moves perpendicular to the direction of the field.
(d) moves opposite to the direction of the field.

17. In an inertial frame of reference, the magnetic force on a moving charged particle is $\vec{F}$ Its value in another inertial frame of reference will be
(a) remained same
(b) changed due to change in the amount of charge
(c) changed due to change in velocity of charged particle
(d) changed due to change in field direction

18. Which one of the following is correct statement about magnetic forces?
(a) Magnetic forces always obey Newton's third law.
(b) Magnetic forces do not obey Newton's third law.
(c) For very high current, magnetic forces obey Newton's third law.
(d) Inside low magnetic field, magnetic forces obey Newton's third law.

WORKSHEET-8
### MAGNETIC EFFECTS OF CURRENT PHYSICS XII ASSIGNMENTS 2 & 3 Marks Questions

1 What is the direction of the force acting on a charged particle q, moving with a velocity $\vec{v}$ in a uniform magnetic field B?

2. Why should the spring/suspension wire in a moving coil galvanometer have low torsional constant?

3. Magnetic field lines can be entirely confined within the core of a toroid, but not within a straight solenoid. Why?

4.An electron does not suffer any deflection while passing through a region of uniform magnetic field. What is the direction of the magnetic field?

5.A beam of a particles projected along +x-axis, experiences a force due to a magnetic field along the +y-axis. What is the direction of the magnetic field?
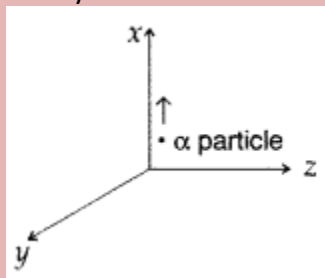
6.A beam of electrons projected along +x-axis, experiences a force due to a magnetic field along the +y/-axis. What is the direction of the magnetic field?
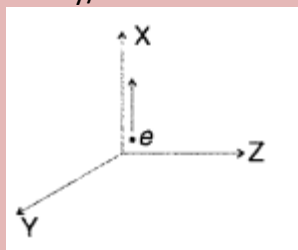
7.A beam of protons, projected along + x-axis, experiences a force due to a magnetic field along the – y-axis. What is the direction of the magnetic field?
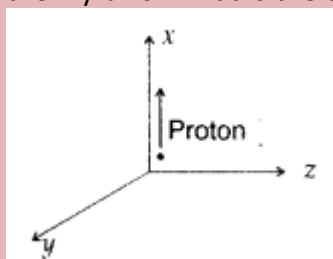
8.Depict the trajectory of a charged particle moving with velocity v as it enters a uniform magnetic field perpendicular to the direction of its motion.

9.Write the expression in vector form, for the magnetic force $\vec{F}$ acting on a charged particle moving with velocity $\vec{V}$ in the presence of a magnetic field B.

10. An ammeter of resistance 0.6 Ω can measure current upto 1.0 A. Calculate
(i) The shunt resistance required to enable the ammeter to measure current upto 5.0 A
(ii) The combined resistance of the ammeter and the shunt.

11.Write the expression, in a vector form, for the Lorentz magnetic force $\vec{F}$ due to a charge moving with velocity $\vec{V}$ in a magnetic field $\vec{B}$. What is the direction of the magnetic force?

12.Using the concept of force between two infinitely long parallel current carrying conductors, define one ampere of current.

13.Write the condition under which an electron will move undeflected in the presence of crossed electric and magnetic fields

14.Why do the electrostatic field lines not form closed loops?

15.A particle of mass 'm' and charge 'q' moving with velocity V enters the region of uniform magnetic field at right angle to the direction of its motion. How does its kinetic energy get affected

16.Write the underlying principle of a moving coil galvanometer.

17.A coil, of area A, carrying a steady current I, has a magnetic moment, $\vec{m}$, associated with it. Write the relation between $\vec{m}$ I and A in vector form.

Moving Charges and Magnetism Class 12 Important Questions Short Answer Type SA II

18.Using Ampere's circuital law, obtain an expression for the magnetic field along the axis of a current carrying solenoid of length I and having N number of turns
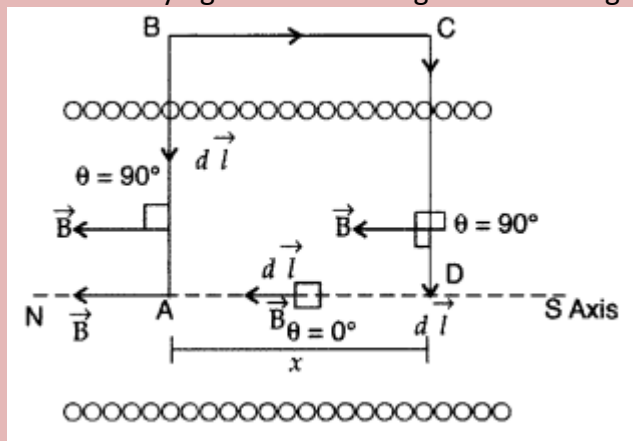
19.A charge 'q' moving B along the X-axis with a velocity v is subjected to a uniform magnetic field B acting along the Z-axis as it crosses the origin O.

20.State Biot-Savart law.
A current I flow in a conductor placed perpendicular to the plane of the paper. Indicate the direction of the magnetic field due to a small element $\vec{dl}$ → at point P situated at a distance $\vec{r}$ from the element as shown in the figure.