

1 Oviya and Kavya are partners in a firm sharing profits and losses in the ratio of 5:3. They admit Agalya into the partnership. Their balance sheet as on 31<sup>st</sup> march, 2019 is as Follows

Balance sheet as on 31<sup>st</sup> march 2019

Liabilities	Rs	Rs	Assets	Rs
Capital accounts			Buildings	40,000
Oviya	50,000		Plant	50,000
Kaviya	<u>40,000</u>		Furniture	30,000
		90,000	Debtors	20,000
Profit and loss			Stock	10,000
appropriation A/c		40,000	Cash	20,000
General reserve		8,000		
Workmen's				
compensation		12,000		
fund				
Sundry creditors		20,000		
		<u>1,70,000</u>		<u>1,70,000</u>

Pass journal entry to transfer the accumulated profits and reserve on admission.

2. Hari, Madhavan and Kesavan are partners, sharing profit and losses in the ratio of 5:3:2. As from 1<sup>st</sup> April 2017, Vanmathi is admitted into the partnership and the new profit sharing ratio is decided as 4:3:2:1. The Following adjustments are to be made.

- Increase the value of premises by Rs 60,000.
- Depreciate stock by Rs 5,000, Furniture by Rs 2,000, and Machinery by Rs 2,500.
- Provide for an outstanding liability of Rs 500. Pass journal entries.

3. Ananth and Suman are partners sharing profits and losses in the ratio of 3:2. They admit saran for 1/5 share, Which he acquires entirely from Ananth. find out the new profit sharing ratio and sacrificing ratio.

4. Ambika, Dharani and Padma are partners in a firm sharing profits in the Ratio of 5:3:2. They admit Ramya for 25% profits. Calculate the new profit sharing ratio and Sacrificing ratio.

5. Deepak, Senthil and Santhosh are partners sharing profits and losses equally. They admit Jerald into partnership for 1/3 share in future profits. The goodwill of the firm is valued at Rs.45,000 and Jerald brought cash for his share of goodwill. The existing partners withdraw half of the amount of their share of goodwill. Pass necessary journal entries for adjusting goodwill on the assumption that the Fluctuating capital method is followed.

6. Sam and Jose are partners in a firm sharing profits and losses in the ratio of 3:2. On 1<sup>st</sup> April 2018, they admitted Joel as a Partner. On the date of Joel's admission. goodwill appeared in the books of the firm at Rs 30,000. by assuming fluctuating capital method. Pass the necessary journal entry if the partners decide to

- Write off the entire amount of existing goodwill.
- Write off Rs 20,000 of the existing goodwill.

II Answer any four of the Following: 4x5=20

7. Seenu and Siva are partners sharing Profits and losses in the ratio of 5:3. in the view of kowsalya admission, they decided.

- To increase the value of building by Rs 40,000.
- To bring into record investments at Rs 10,000, Which have not so far been brought into account.
- To decrease the value of machinery by Rs 14,000 and furniture by rs 12,000.
- To write off sundry creditors by Rs 16,000.

8. Raja and Ravi are partners, sharing profits in the ratio of 3:2. They admit Ram for 1/4 share of the profit. He takes 1/20 share from Raja and 4/20 from Ravi. Calculate the new profits sharing ratio and sacrificing ratio.

9. Govind and Gopal are partners in a firm sharing profits in the ratio of 5:4. They admit Rahim as a partner. Govind surrenders 2/9 of his share in favour of Rahim. Gopal surrenders 1/9 of his share in favour of Rahim. Calculate the new profit sharing ratio and sacrificing ratio.

10. Malathi and Shobana are partners sharing profits and losses in the ratio of 5:4. They admit Jayasri into partnership for 1/3 share of profits. Jayasri pays cash Rs 6,000 towards her share of goodwill. the new Ratio is 3:2:1. Pass necessary journal entry for adjusting goodwill on the assumption that the fixed capital method is followed.

11. Varun and Barath are partners sharing profits and losses 5:4. they admit Dhamu into partnership. The new profit sharing ratio is agreed at 1:1:1. Dhamu's share of goodwill is valued at Rs 15,000 of which he pays Rs 10,000 in cash. pass necessary journal entry for adjustment of goodwill on the assumption that the fluctuating capital method is followed.

III. Answer any one of the Following:

1x10=10

12. The following is the balance sheet of James and Justina as on 1.01.2017. They share the profits and losses equally.

Liabilities	Rs	Rs	Assets	Rs
Capital accounts			Buildings	70,000
James	40,000		Stock	30,000
Justina	<u>50,000</u>		Debtors	20,000
		90,000	Bank	15,000
			Prepaid	
Creditors		35,000	Insurance	5,000
Reserve fund		15,000		
		<u>1,40,000</u>		<u>1,40,000</u>

On the above date, Balan is admitted as a partner with 1/5 share in future profits. Following are the terms for his admission:

(i) Balan brings Rs 25,000 as capital.

(ii) His share of goodwill is Rs 10,000 and he brings cash for it.

(iii) The assets are to be valued as under:

Building Rs 80,000, Debtors Rs 18,000, Stock Rs 33,000.

Prepare necessary ledger accounts and the balance sheet after admission.

13. Anbu and Shankar are partners in a business sharing profits and losses in the ratio of 3:2. The balance sheet of the partners on 31.03.2018 is as follows.

Liabilities	Rs	Rs	Assets	Rs
Capital accounts			Computer	40,000
Anbu	4,00,000		Motor car	1,60,000
Shankar	<u>3,00,000</u>		Stock	4,00,000
		7,00,000	Debtors	3,60,000
Profit and loss		1,20,000	Bank	40,000
Creditors		1,20,000		
Workmen				
compensation				
fund		<u>60,000</u>		
		<u>10,00,000</u>		<u>10,00,000</u>

Rajesh is admitted for 1/5 share on the following terms:

(i) Goodwill of the firm is valued at Rs 75,000 and Rajesh brought cash for his share of goodwill.

(ii) Rajesh is to bring Rs 1,50,000 as his capital.

(iii) Motor car is valued at Rs 2,00,000, Stock at Rs.3,80,000 and debtors at Rs 3,50,000.

(iv) Anticipated claim on workmen compensation fund is Rs.10,000

(v) Unrecorded investment of Rs 5,000 has to be brought into account.

Prepare revaluation account, Capital account and balance sheet after Rajesh's admission.

I. Choose the correct answer: 5x1=5

- The most common oxidation state of actinoids is  
a) +2      b) +3      c) +4      d) +6
- The catalytic behavior of transition metals and their compounds is ascribed mainly due to  
a) their magnetic behavior      b) their unfilled d-orbitals  
c) their ability to adopt variable      d) their chemical reactivity
- The alloy of copper that contains Zinc is  
a) monel metal      b) Bronze      c) bell metal      d) brass
- The defect which decreases the density of the crystal is  
a) Interstitial defect      b) Vacancy defect      c) Frenkel defect  
d) None of the above
- In FCC, an atom at the face contributes to the unit cell –  
a)  $\frac{1}{4}$  part      b) 1 part      c)  $\frac{1}{2}$  part      d)  $\frac{1}{8}$  part

II. Answer any 5 of the following: 5x2=10

- What are primitive and non-primitive unit cells.
- Ionic solids conducts electricity in molten state. Give reason.
- What are transition metals. Give example.
- Why  $Gd^{3+}$  is colourless?
- Which is more stable?  $Fe^{3+}$  or  $Fe^{2+}$  - explain.
- Calculate the number of atoms per unit cell of FCC.

III. Answer any 5 of the following: 5x3=15

- Why do Zirconium and Hafnium exhibit similar properties?
- Give any three differences between lanthanoids and actinoids.
- Complete the following:  
i)  $KMnO_4 \xrightarrow{\text{red hot}} ?$   
ii)  $Na_2Cr_2O_7 + KCl \longrightarrow ?$   
iii)  $C_6H_5CH_3 \xrightarrow[\text{KMnO}_4]{\text{acidified}} ?$

- Explain the oxidizing property of  $K_2Cr_2O_7$  with two examples.
- Explain Frenkel defect.
- Give the characteristic properties of ionic crystals.

IV. Answer any 2 in detail: 2x5=10

- Explain the preparation of potassium dichromate from chromate ore.
- Explain the types of crystalline solids with example.
- a) Explain why  $Cr^{2+}$  is strongly reducing while  $Mn^{3+}$  is strongly oxidising.  
b) Transition metals show high melting points. Why?

I. Choose the correct answer: 5x1=5

- Marketing mix means a marketing program that is offered by a firm to target its \_\_\_\_\_ to earn profit through satisfaction of their wants.  
a. Seller      b. Retailer      c. Consumer      d. Wholesaler
- The initial stage of marketing system is \_\_\_\_\_.  
a. monopoly system      b. self producing  
c. barter system      d. exchange to money
- In which year SEBI was constituted as the regulator of capital markets in India?  
a. 2013      b. 1992      c. 2014      d.1988
- SEBI is empowered by the finance ministry to nominate \_\_\_\_\_.  
a. 4      b. 3      c. 2      d. 1
- When was NSEI established?  
a. 1990      b. 1991      c. 1992      d. 1993

II. Answer any four of the following: 4x2=8

- Define marketing mix.
- What is a demat account?
- Mention the headquarters of SEBI.
- Write a note on OTCEI?
- Who are the participants in a capital market?
- Give any two internal factors affecting the price of the product service?

III. Answer any four of the following: 4x3=12

- What are the factors affecting price of product?
- What is the need for market and explain the concept of marketing?
- What are the objectives of marketing?
- What are the documents required for a demat account?
- What is meant by insiders trading?
- Draw the organisation structure of SEBI?

IV. Answer any 3 of the following: 3x5=15

- Discuss the characteristics of a capital market.
- What are the functions of SEBI?
- Discuss about the evolution of marketing.
- Why is marketing important to the society and individual firm? Explain.

- Everwin Matric. Hr. Sec. School
- 03.09.19      Comprehensive Revision Programme-1      Marks:40  
 Std:XII [H] FN      Economics      Time:1.15 Hrs
- I. Choose the correct answer:      5x1=5
- Which of the following is a modern theory of international trade?
    - comparative cost
    - factor endowment theory
    - none of these
  - Net export equal \_\_\_\_\_.
    - Export – Import
    - Export + Import
    - Export x Import
  - \_\_\_\_\_ investment may also help increase competition.
    - Gold
    - Foreign
    - Money
  - Large \_\_\_\_\_ are driving out foreign investors.
    - Terms of trade
    - Trade
    - Policy issue
  - Viner has devised another concept called \_\_\_\_\_.
    - Net Barter terms of trade
    - The single factorial terms of trade
    - Internal trade
- II. Answer the following: [Any 4]      4x2=8
- Define International Trade.
  - What is meant by Exchange Rate?
  - What do you mean by Balance of Payments?
  - What is FDI?
  - Write the meaning of Terms of Trade.
  - What is meant by Devaluation?
- II. Answer the following: [Any 4]      4x2=8
- Explain the Net Barter Terms of Trade and Gross Terms of Trade.
  - State the objectives of Foreign Direct Investment.
  - Compare the classical theory of international trade with Modern Theory trade.
  - What are the determinants of Exchange Rates?
  - What are the assumptions of Absolute Cost Advantages?
  - Explain the relationship between Foreign Direct Investment and Economic development.
- IV. Answer the following: [Any 3]      3x5=15
- Discuss the Modern Theory of International Trade.
  - How the Rate of Exchange is determined? Illustrate.
  - Explain briefly the comparative cost theory.
  - Explain the causes for balance of payment disequilibrium.

- Everwin Matric. Hr. Sec. School
- 03.09.19      Comprehensive Revision Programme -1      Marks:40  
 Std:XII [C,D] FN      Bio-Botany      Time: 1.15 Hrs
- I. Answer all:      3x1=3
- Choose the incorrect pair:
    - Golden Rice - *Oryza sativa*
    - Poly hydroxyl butyrate - Degradable polymer
    - Poly lactic acid - Non degradable
    - Green fluorescent protein- *Aequorea victoria*
  - Production of monoclonal antibodies by
    - Sanger and Gilbert
    - Kohler and Milstein
    - Watson and Crick
    - None of the above
  - The cry toxins effect the \_\_\_\_\_ system of insect.
- II. Answer any 3 of the following:      3x2=6
- What are palindromic repeats?
  - Differentiate Exonucleae and Endonucleases.
  - Comment on PCR.
  - Define electrophoresis.
- III. Answer any 2 of the following:      2x3=6
- Draw and label PBR 322 plasmid.
  - Explain about the Ti plasmid.
  - What is CRISPR-Cas 9?
- IV. Answer any 1 in detail:      1x5=5
- What is the purpose of Green Fluorescent protein.
  - Explain about the biodegradable plastics.
- Bio-Zoology
- I. Answer any 1 of the following:      1x1=1
- Expand GEM.
  - Expand BOD.
- II. Answer any 4 of the following:      4x2=8
- What is meant by Oenology?
  - What is meant by Zymology?
  - What is meant by Opsanization?
  - What is the significance and contribution of Anand Chakrabarty?
  - What is meant by withdrawal symptoms?
  - What is meant by seek and destroy?
- III. Answer any 2 of the following:      2x3=6
- What is meant by vaccinization?
  - Write a note on second and third generation vaccines and their importance.
  - Write a note on two bio-control agents.
- IV. Answer any 1 of the following:      1x5=5
- Write a note on Innate immunity.
  - Write a note on Bioremediation.
  - Write a note on the structure of Ig molecule.

I. Choose the correct answer: 10x1=10

1. A named blocks of code that are designed to do one specific job is called as \_\_\_\_\_.

- a) Loop      b) Branching      c) Function      d) Block

2. A function which calls itself is called as \_\_\_\_\_.

- a) Built-in      b) Recursion      c) Lambda      d) Return

3. Which function is called anonymous function?

- a) Lambda      b) Recursion      c) Function      d) define

4. \_\_\_\_\_ keyword is used to begin the function block.

- a) define      b) for      c) finally      d) def

5. \_\_\_\_\_ keyword is used to exit a function block.

- a) define      b) return      c) for      d) def

6. \_\_\_\_\_ operator is used for concatenation.

- a) +      b) &      c) -      d) =

7. Strings in Python

- a) mutable      b) immutable      c) changeable      d) flexible

8. The subscript can be \_\_\_\_\_ integer numbers.

- a) +ve      b) -ve      c) a or b      d) a and b

9. \_\_\_\_\_ is slicing operator.

- a) +      b) +=      c) \*      d) [ ]

10. Python allocate an \_\_\_\_\_ value for in each character.

- a) index      b) initial      c) final      d) face

II. Answer any 4 of the following: 4x2=8

11. What is string?

12. Do you modify a string inPython?

13. How will you delete a string in Python?

14. Define global scope.

15. What is lambda function?

III. Answer any 4 of the following: 4x3=12

16. What happens when we modify global variable inside the function?

17. What is composition in function?

18. Differentiate ceil( ) and floor( ).

19. Write about capitalize( ) and swapcase( ) function.

20. What is the use of format( ) function and with example?

IV. Answer any 2 in detail: 2x5=10

21. Write about string operators in Python?

22. How can create and access string.....? Explain with suitable ex.

23. Explain: i) type( ) ii) id( ) iii) pow( ) iv) chr( ) v) round( )

I. Choose the correct answer:

5x1=5

1. If  $x+y=k$  is a normal to the parabola  $y^2=12x$  then the value of  $k$  is

- a) 3      b) -1      c) 1      d) 9

2. The circle passing through (1, -2) and touching the x-axis at (3, 0) passing through the point \_\_\_\_\_.

- a) (-5, 2)      b) (2, -5)      c) (5, -2)      d) (-2, 5)

3. The eccentricity of the ellipse  $(x-3)^2+(y-4)^2=\frac{y^2}{9}$  is \_\_\_\_\_.

- a)
- $\frac{\sqrt{3}}{2}$
- b)
- $\frac{1}{3}$
- c)
- $\frac{1}{3\sqrt{2}}$
- d)
- $\frac{1}{\sqrt{3}}$

4. Three normals can be drawn to a parabola  $y^2=4ax$  from a given point, one of which is always \_\_\_\_\_.

- a) Imaginary      b) Real      c) Zero      d) One

5. The point of contact of a tangent line and parabola is \_\_\_\_\_.

- a)
- $(\frac{2a}{m^2}, \frac{a}{m})$
- b)
- $(\frac{a}{m^2}, \frac{2a}{m})$
- c)
- $(\frac{a}{m}, \frac{2a}{m})$
- d)
- $(\frac{a}{m}, \frac{a^2}{m^2})$

II. Answer any 5 of the following:

5x3=15

6. Find the equation of the tangent to the parabola  $y^2=16x$  perpendicular to  $2x+2y+3=0$ .

7. The parabolic communication antenna has a focus at 2m distance from the vertex of the antenna. Find the width of the antenna 3m from the vertex.

8. An equation of the elliptical part of an optical lens system is

 $\frac{x^2}{16}+\frac{y^2}{9}=1$ . The parabolic part of the system has a focus in common

with right focus of the ellipse. The vertex of the parabola is at the origin and the parabola opens to the right. Determine the equation of the parabola.

9. An engineer designs a satellite dish with a parabolic cross section. The dish is 5m wide at the opening and the focus is placed

1.2m from the vertex. Find the depth of the satellite dish at the vertex.

10. If the normal at the point  $t_1$  on the parabola  $y^2=4ax$  meets the parabola again at the point  $t_2$  then prove that  $t_2=-\left(t_1 + \frac{2}{t_1}\right)$ 11. Show that the line  $x-y+4=0$  is a tangent to the ellipse  $x^2+3y^2=12$ .

III. Answer any 4 of the following:

4x5=20

12. At a water fountain, water attains a maximum height of 4m at horizontal distance of 0.5m from its origin. If the path of water is a parabola, find the height of water at a horizontal distance of 0.75m from the point of origin.

13. A rod of length 1.2m moves with its ends always touching the co-ordinate axes. The locus of a point P on the rod, which is 0.3m from the end in contact with x-axis is an ellipse. Find the eccentricity.

14. Prove that the line  $5x+12y=9$  touches the hyperbola  $x^2-9y^2=9$  and find the point of contact.15. Find the equations of the two tangents that can be drawn from (5, 2) to the ellipse  $2x^2+7y^2=14$ 16. Find the equations of tangent and normal to hyperbola  $12x^2-9y^2=108$  at  $\theta=\frac{\pi}{3}$ .

I. Choose the correct answer:

5x1=5

1. If  $x+y=k$  is a normal to the parabola  $y^2=12x$  then the value of  $k$  is

- a) 3      b) -1      c) 1      d) 9

2. The circle passing through (1, -2) and touching the x-axis at (3, 0) passing through the point \_\_\_\_\_.

- a) (-5, 2)      b) (2, -5)      c) (5, -2)      d) (-2, 5)

3. The eccentricity of the ellipse  $(x-3)^2+(y-4)^2=\frac{y^2}{9}$  is \_\_\_\_\_.

- a)
- $\frac{\sqrt{3}}{2}$
- b)
- $\frac{1}{3}$
- c)
- $\frac{1}{3\sqrt{2}}$
- d)
- $\frac{1}{\sqrt{3}}$

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- a) Imaginary      b) Real      c) Zero      d) One

5. The point of contact of a tangent line and parabola is \_\_\_\_\_.

- a)
- $(\frac{2a}{m^2}, \frac{a}{m})$
- b)
- $(\frac{a}{m^2}, \frac{2a}{m})$
- c)
- $(\frac{a}{m}, \frac{2a}{m})$
- d)
- $(\frac{a}{m}, \frac{a^2}{m^2})$

II. Answer any 5 of the following:

5x3=15

6. Find the equation of the tangent to the parabola  $y^2=16x$  perpendicular to  $2x+2y+3=0$ .

7. The parabolic communication antenna has a focus at 2m distance from the vertex of the antenna. Find the width of the antenna 3m from the vertex.

8. An equation of the elliptical part of an optical lens system is

 $\frac{x^2}{16}+\frac{y^2}{9}=1$ . The parabolic part of the system has a focus in common

with right focus of the ellipse. The vertex of the parabola is at the origin and the parabola opens to the right. Determine the equation of the parabola.

9. An engineer designs a satellite dish with a parabolic cross section. The dish is 5m wide at the opening and the focus is placed

1.2m from the vertex. Find the depth of the satellite dish at the vertex.

10. Prove that the point of intersection of the tangent at  $t_1$  and  $t_2$  on the parabola  $y^2=4ax$  is  $[at_1 t_2, a(t_1+t_2)]$ .11. Show that the line  $x-y+4=0$  is a tangent to the ellipse  $x^2+3y^2=12$ .

III. Answer any 4 of the following:

4x5=20

12. On lighting a rocket cracker it gets projected in a parabolic path and reaches a maximum height of 4m when it is 6m away from the point of projection. Finally it reaches the ground 12m away from the starting point. Find the angle of projection.

13. A bridge has a parabolic arch that is 10m high in the centre and 30m wide at the bottom. Find the height of the arch 6m from the centre on either sides.

14. Prove that the line  $5x+12y=9$  touches the hyperbola  $x^2-9y^2=9$  and find the point of contact.15. Find the equations of the two tangents that can be drawn from (5, 2) to the ellipse  $2x^2+7y^2=14$ 16. Find the equations of tangent and normal to hyperbola  $12x^2-9y^2=108$  at  $\theta=\frac{\pi}{3}$ .

I. Choose the most appropriate synonyms of the underlined word from the options given below: 10x1=10

1. After fifteen minutes, I moved down off the summit on  
 a) below b) top c) stepped down d) down
2. Scrambling on the rocks and cutting handholds on the snow.  
 a) knicked-steps b) climbing on hands & knees  
 c) slipped steps d) Climbing on ice, wearing spike shoes

Choose the most appropriate antonyms of the underlined word from the options given below:

3. all encrusted with long icicles – that concealed his face.  
 a) sudden b) secret c) disclosed d) closed

Fill in the blanks with phrasal verbs:

4. Don't \_\_\_\_\_ your homework to the last minute.  
 a) put off b) took over c) put up d) put on

Fill in the blanks with right idiom:

5. The Sherpas are cheerful, gallant men, who \_\_\_\_ tents, oxygen, food, etc.,  
 a) do the math b) fetch and carry c) ducks in a row  
 d) round the corner

Form a compound word from the following options:

6. I was becoming rather clumsy-fingered and slow \_\_\_\_\_.  
 a) passing b) moving c) proof d) cutting

Read the following sentences and fill in the blanks

7. you will be rewarded by the wise, if you \_\_\_\_ (stand) for truth.
8. The Education Minister \_\_\_\_\_ (visit) our school tomorrow, if he goes by this way.

Read the following complex sentence and circle the main clause and underline the subordinate clause:

9. I believe that all men are basically good.
10. No one knows when he will return.

II. Rewrite the sentence using 'If': 2x1=2

11. The palace cannot be kept clean, unless we appoint more people

III. Read the following sets of the poetic line and answer the questions below: 7x1=7

12. ....for my purpose holds  
 To sail beyond the sunset and the baths  
 of all the western stars, until I die.

- a) What was Ulysses purpose in life?
- b) How long would his venture last?

13. How dull it is to pause, to make an end,  
 To rust unburnish'd not to shine in use'

- a) What does Ulysses consider as 'dull'?
- b) Mention the figure of speech.

14. When I am gone. He works is work, I mine  
 There lies the port; the vessel puffs her sail

- a) Who is the 'he' here?
- b) Mention the figure of speech here.
- c) Whom does the word 'I' refer to?

IV. Explain any one of the following lines with reference to the context. 1x3=3

15. I am become a nam;  
 For always roaming with a hungry heart

16. To strive, to seek, to find, and not to yield

V. Answer any one of the following in three or four sentences each: 1x3=3

17. When did Hillary do with his wet boots?
18. When did Hillary feel a sense of freedom and well-being?

VI. Write a paragraph of 100-150 words of any one of the following: 1x5=5

19. What makes Ulysses seek newer adventures?
20. How did Ausable outwit max?

I. Choose the correct answer: 10x1=10

1. As compared to associative arrays vector arrays are much
  - a) faster
  - b) slower
  - c) stable
  - d) none of these
2. PHP arrays are also called as
  - a) vector arrays
  - b) Peal arrays
  - c) Hashes
  - d) All of them
3. A function in PHP which starts with `_(double underscore)` is known as
  - a) Magic function
  - b) Inbuilt function
  - c) Default function
  - d) User defined function
4. What will be the output of the following PHP code?
 

```
<?PHP for ($X=1; $X<10; ++$X)
    {
        Print"\t";
    }
?>
```

  - a) \*\*\*\*\*
  - b) \*\*\*\*\*
  - c) \*\*\*\*\*
  - d) Infinite loop
5. PHP supports four types of looping techniques.
  - a) for loop
  - b) while loop
  - c) for each loop
  - d) all the above
6. Loops that iterates for fixed number of times is called
  - a) Unbound loops
  - b) Bounded loops
  - c) While loops
  - d) For loops
7. Which directive determines whether PHP scripts on the server can accept file uploads?
  - a) file\_uploads
  - b) file\_upload
  - c) file\_input
  - d) file\_intake
8. When you use the `$GET` variable to collect data, the visible is to
  - a) none
  - b) only you
  - c) everyone
  - d) selected few
9. PHP is a \_\_\_\_\_ typed language.
  - a) User
  - b) Loosely
  - c) Server
  - d) System
10. In HTML form `<input type= "text">` is used for
  - a) one line text
  - b) Block of text
  - c) One paragraph
  - d) None

II. Answer any 4 of the following: 4x2=8

(Q.No.13 is compulsory)

11. Write the Usage of File open function.
12. What is Form Validation in PHP?
13. Write syntax of while loop in PHP.
14. List out system defined functions.
15. Define function in PHP.

III. Answer any 4 of the following: 4x3=12

(Q.No.19 is compulsory)

16. Write short notes on Array.
17. Write the purpose of parameterized function.
18. Differentiate for each and while loop.
19. Write short notes on File handling functions.
20. Write the features of Looping structure.

IV. Answer any 2 in detail: 2x5=10

21. Explain array concepts in Looping structure.
22. Explain Function concepts in PHP.
23. Explain Indexed array and Associate array in PHP.
24. Explain Form Handling methods.

I. Choose the correct answer: 10x1=10

1.  $\Delta^2 y_0 =$  \_\_\_\_\_  
 a)  $y_2 - 2y_1 + y_0$     b)  $y_2 + 2y_1 - y_0$     c)  $y_2 + 2y_1 + y_0$     d)  $y_2 + y_1 + 2y_0$
2. E f(x) = \_\_\_\_\_  
 a) f(x-h)    b) f(x)    c) f(x+h)    d) f(x+2h)
3.  $\Delta \nabla =$  \_\_\_\_\_  
 a)  $\Delta - \nabla$     b)  $\Delta + \nabla$     c)  $\frac{\Delta}{\nabla}$     d)  $\frac{\nabla}{\Delta}$
4. If c is a constant then  $\Delta c =$  \_\_\_\_\_  
 a) 0    b) 1    c)  $\infty$     d) 10
5. Shifting operator is also called as \_\_\_\_\_ operator.  
 a) Forward    b) Backward    c) Displacement    d) None of the above
6.  $\Delta =$  \_\_\_\_\_  
 a) E+1    b) E-1    c) E    d)  $\frac{E}{10}$
7.  $\nabla f(a) =$  \_\_\_\_\_  
 a) f(a)+f(a-h)    b) f(a)-f(a+h)    c) f(a)-f(a-h)    d) f(a)
8. Lagrange's interpolation formula can be used for \_\_\_\_\_.  
 a) equal intervals only    b) unequal intervals only  
 c) Both equal & unequal intervals    d) None of these
9. If h=1, then  $\Delta x^2 =$  \_\_\_\_\_  
 a) 2x    b) 2x-1    c) 2x+1    d) 1
10. If f(x)= $x^2+2x+2$  and the interval of differencing is unity then  $\Delta f(x) =$  \_\_\_\_\_  
 a) 2x-3    b) 2x+3    c) x+3    d) x-3

II. Answer any 3 of the following: 3x2=6

11. Construct a forward difference table for the following data  

x :	0	10	20	30
y :	0	0.174	0.347	0.518
12. Find  $\Delta e^{ax}$
13. If f(x)= $x^2+3x$  then show that  $\Delta f(x)=2x+4$
14. If h=1 then prove that  $(E^{-1}\Delta)x^3=3x^2-3x+1$

III. Answer any 3 of the following: 3x3=9

15. Evaluate  $\Delta \left[ \frac{1}{(x+1)(x+2)} \right]$  by taking '1' as the interval of differencing.
  16. Find the missing entry in the following table  

x :	0	1	2	3	4
y :	1	3	9	?	81
  17. Using graphic method, find the value of y when x=48.  

x :	40	50	60	70
y :	6.2	7.2	9.1	12
  18. Given  $y_3=2, y_4=-6, y_5=8, y_6=9$  &  $y_7=17$ . Calculate  $\Delta^4 y_3$ .
- IV. Answer any 3 of the following: 3x5=15
19. Find the missing entries  

Year:	1961	1962	1963	1964	1965	1966	1967
Production:	200	220	260	?	350	?	430
  20. Using interpolation, find the value of f(x) when x=15  

x :	3	7	11	19
f(x) :	42	43	47	60
  21. In an examination the no. of candidates who secured marks between certain interval were as follows:  

Marks :	0-19	20-39	40-59	60-79	80-99
No. of candidates:	41	62	65	50	17

 Estimate the number of candidates whose marks are less than 70
  22. The population of a city in a census taken once in 10 yrs is given below. Estimate the population in the year 1955.  

Year:	1951	1961	1971	1981
Population:	35	42	58	84

 (in lakhs)

I. Choose the correct answer: 5x1=5

1. If  $x^{ayb}=e^m$ ,  $x^{cyd}=e^n$ ,  $\Delta_1 = \begin{vmatrix} m & b \\ n & d \end{vmatrix}$ ,  $\Delta_2 = \begin{vmatrix} a & m \\ c & n \end{vmatrix}$ ,  $\Delta_3 = \begin{vmatrix} a & b \\ c & d \end{vmatrix}$  then the values of x and y are respectively,

a)  $e^{\frac{\Delta_2}{\Delta_1}}$ ,  $e^{\frac{\Delta_3}{\Delta_1}}$       b)  $\log\left(\frac{\Delta_1}{\Delta_3}\right)$ ,  $\log\left(\frac{\Delta_2}{\Delta_3}\right)$       c)  $\log\left(\frac{\Delta_2}{\Delta_1}\right)$ ,  $\log\left(\frac{\Delta_3}{\Delta_1}\right)$

d)  $e^{\frac{\Delta_1}{\Delta_3}}$ ,  $e^{\frac{\Delta_2}{\Delta_3}}$

2. If  $A = \begin{pmatrix} 3 & 1 & -1 \\ 2 & -2 & 0 \\ 1 & 2 & -1 \end{pmatrix}$  and  $A^{-1} = \begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{pmatrix}$  then the value of  $a_{23}$  is

a) 0                      b) -2                      c) -3                      d) -1

3. If  $A = \begin{pmatrix} 2 & 3 \\ 5 & -2 \end{pmatrix}$  be such that  $\lambda A^{-1} = A$  then  $\lambda$  is

a) 17                      b) 14                      c) 19                      d) 21

4. If  $A = \begin{pmatrix} 3 & 5 \\ 1 & 2 \end{pmatrix}$ ,  $B = \text{adj } A$  and  $c = 3A$  then  $\frac{|\text{adj } B|}{|c|} =$

a)  $\frac{1}{3}$                       b)  $\frac{1}{9}$                       c)  $\frac{1}{4}$                       d) 1

5. The rank of  $AA^T$  if  $A = (1 \ 2 \ 3)$

a) 3                      b) 1                      c) 2                      d) 0

II. Answer any 4 of the following: (Q.No.10 is compulsory) 4x2=8

6. If  $\text{adj } A = \begin{pmatrix} 0 & -2 & 0 \\ 6 & 2 & -6 \\ -3 & 0 & 6 \end{pmatrix}$  find  $A^{-1}$

7. Find the rank of the matrix  $\begin{pmatrix} 2 & -2 & 4 & 3 \\ -3 & 4 & -2 & -1 \\ 6 & 2 & -1 & 7 \end{pmatrix}$  by reducing it to an echelon form.

8. Solve by matrix inversion method:  $5x+2y=3$        $3x+2y=5$

9. Find the inverse of the non-singular matrix  $A = \begin{pmatrix} 0 & 5 \\ -1 & 6 \end{pmatrix}$  by Gauss-Jordan method.

10. Find k if the equations  $x+2y+3z=0$ ,  $x-3y-3z=0$ ,  $2x+y+kz=0$  have only the trivial solution.

III. Answer any 4 of the following: (Q.No.15 is compulsory) 4x3=12

11. If  $A = \begin{pmatrix} 5 & 3 \\ -1 & -2 \end{pmatrix}$ , show that  $A^2 - 3A - 7I_2 = O_2$ . Hence find  $A^{-1}$ .

12. Find the rank of  $\begin{pmatrix} 1 & 2 & -1 \\ 3 & -1 & 2 \\ 1 & -2 & 3 \\ 1 & -1 & 1 \end{pmatrix}$  by row reduction method.

13. Solve by Cramer's rule:  $\frac{3}{x} + 2y = 12$ ;  $\frac{2}{x} + 3y = 13$

14. Test for consistency of the equations  $2x+2y+z=5$ ;  $x-y+z=1$ ;  $3x+y+2z=4$

15. If the rank of the matrix  $\begin{pmatrix} \lambda & -1 & 0 \\ 0 & \lambda & -1 \\ -1 & 0 & \lambda \end{pmatrix}$  is 2, then find  $\lambda$ .

IV. Answer any 3 of the following: 3x5=15

16. Solve by Rank method:  $x-y+2z=2$ ;  $2x+y+4z=7$ ,  $4x-y+z=4$ .

17. Determine the values of  $\lambda$  for which the system of equations  $x+y+3z=0$ ,  $4x+3y+\lambda z=0$ ,  $2x+y+2z=0$  has i) a unique solution ii) a non-trivial solution.

18. A chemist has one solution which is 50% acid and another solution which is 25% acid. How much each should be mixed to make 10 litres of 40% acid solution? (Use Cramer's rule to solve the problem).

19. A man is appointed in a job with a monthly salary of certain amount and a fixed amount of annual increment. If his salary was Rs.19,800 per month at the end of the first month after 3 years of service and Rs.23,400 per month at the end of the first month after 9 years of service, find his starting salary and his annual increment. (Use matrix inversion method to solve the problem)

I. Choose the correct answer: 5x1=5

1. The value of relative permittivity of air is \_\_\_\_\_.
  - a.  $8.854 \times 10^{-12} \text{C}^2 \text{N}^{-1} \text{m}^{-2}$
  - b.  $9 \times 10^9 \text{C}^2 \text{N}^{-1} \text{m}^{-2}$
  - c. 1
  - d.  $8.85 \times 10^{12}$
2. Potential energy of two equal negative point charges of magnitude  $2\mu\text{C}$  placed 1m apart in air is \_\_\_\_\_.
  - a. 2J
  - b. 0.36J
  - c. 4J
  - d. 0.036J
3. The unit of molecular polarisability is \_\_\_\_\_.
  - a.  $\text{C}^2 \text{N}^{-1} \text{m}$
  - b.  $\text{Nm}^2 \text{C}^{-1}$
  - c.  $\text{N}^{-1} \text{m}^{-2} \text{C}^2$
  - d.  $\text{C}^{-1} \text{m}^2 \text{V}$
4. The total flux over a closed surface enclosing a charge q \_\_\_\_\_.
  - a.  $8\pi q$
  - b.  $9 \times 10^9 q$
  - c.  $36\pi \times 10^9 q$
  - d.  $8.854 \times 10^{-12} q$
5. The law that governs the force between electric charges is \_\_\_\_\_.
  - a. ampere's law
  - b. faraday's law
  - c. coulomb's law
  - d. ohm's law

II. Answer the following: [Any 4] 4x2=8

6. Define electro static shielding.
7. State dielectric breakdown.
8. Define Polarisation.
9. Give the relation between electric field and electric potential.
10. What are the applications of Vande graff generator?
11. Define action at points.

III. Answer the following: [Any 4] 4x3=12

12. Difference between gravitational force and coulomb's force.
13. What are the basic properties of charges?
14. Obtain the expression for energy stored in the parallel plate capacitor.
15. Derive an expression for electric potential due to a point charge.
16. Derive an expression for the torque experienced by a dipole due to a uniform electric field.

III. Answer in detail: [Any 3] 3x5=15

17. Explain dielectrics in detail and how an electric field is induced inside the dielectric.
18. Obtain a expression for electric field due to an electric dipole on the equatorial plane.
19. Derive the expression for resultant capacitance, when capacitors are connected in series and in parallel.
20. Obtain the expression for electric field due to an charged infinite plane sheet.