EVERWIN MATRIC. HR. SEC. SCHOOL

27.11.19   Comprehensive Revision Programme-2 Marks: 40

Std: XII (A-E) FN   Computer Science   Time:1.15 hrs

I. Choose the correct answer: 5x1=5

1. The process of building a variable name with an object is called

   a) Scope   b) Mapping   c) Late binding   d) early binding

2. Which of the following security technique that regulates who can use resources in a computing environment?

   a) Password   b) Authentication   c) Access control

   d) Certification

3. The complexity of linear search algorithm is _____.

   a) O(n)   b) O(log n)   c) O(n2)   d) O(nlog n)

4. In dynamic programming, the technique of storing the previously calculated values is called _____.

   a) saving value property   b) storing value property

   c) Memorization   d) Mapping

5. The keys in Python, dictionary is specified by _____.

   a) =   b) ;   c) +   d) :

II. Answer any 5 of the following in one or two lines: 5x2=10

   Q.No.12 is compulsory

6. Write a note on dictionaries.

7. Write the syntax for defining dictionaries.

8. Discuss the Algorithmic complexity and its types.

9. Write a note on Asymptotic notation.

10. Why scope should be used for variable? State reason.

11. What is the difference between python and C++ members?

12. Define the function index( ) with syntax and example.

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

   Q.No.19 is compulsory

13. How to update and delete tuple?

14. Explain the difference between del and clear ( ) in dictionary with an example.

15. Define Tuple assignment with example.

16. What is an algorithm? Who is an Algorist?

17. Define pseudocode, sorting and searching.

18. Why access control is required?

19. What is Mapping and Namespaces?

IV. Answer any 2 of the following in detail: 2x5=10

20. Explain the types of scopes for variable.

21. Write any five benefits in using Modular Programming.

22. Explain the Bubble sort algorithm with example.

23. What is the purpose of range ( )? Explain with an example.

27.11.19   Comprehensive Revision Programme-2   Time:1.15 hrs

STD: XII (A-E) FN   Biology   Marks: 20

Bio-Botany

I. Answer all the questions: 3x1=3

 1. Gametes are never hybrid; this is a statement of _____.

    a. Law of segregation

    b. Law of dominance

    c. Law of random fertilization

    d. Law of Independent assortment

 2. Solidifying agent used in plant tissue culture is _____.

     a. Nicotinic acid   b. EDTA

     c. Cobaltous chloride   d. Agar

 3. How many map units separate two alleles A and B if the

    recombination frequency is 0.09?

        a. 900 cM   b. 90 cM   c. 9 cM   d. 0.9 cM

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

 4. List out the salient features of chromosomal theory of inheritance.

 5. List out the advantages of artificial seeds.

 6. Define IPR.

 7. What do you know about pleiotropy?

III. Answer any 2 of the following: 2x3=6

 8. Differentiate continuous variation with discontinuous variation.

 9. Draw the flow chart of plant regeneration path way.

 10. Mention the name of man-made cereal. How it is formed.

IV. Answer in Detail: (any 1)   1x5=5

 11. Explain Polygenic Inheritance with an example.

                    (or)

     Explain the techniques involved in PTC.

Bio-Zoology   Marks: 40

I. Answer any one of the following: 1x1=1

 1. Expand a) SD (or) b) VNTR

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

 2. Write a note on opsonisation.

 3. Write a note on use and diuse theory.

 4. Differentiate mould and cast.

 5. What is meant by convergent evolution?

 6. Draw and label the tRNA.

 7. What is meant by coacervates?

 8. What is meant by Polycistronic structural gene?

III. Answer any 2 of the following: 2x3=6

 9. Write a note on three features of innate immunity.

 10. Write a note on objections of Darwinism.

 11. Explain on Lac operon and its structure.

 12. Write a note and explain on Actual remains.

                          (or)

     Explain on second and third generation vaccination.

IV. Answer any one of the following: 1x5=5

 13. Explain on Hardy-Weinberg Principle and its assumptions.

 14. Write a note on the experiment of Invit-ro model of Griffith's

     experiment.

27.11.19   Comprehensive Revision Programme-2 Marks:40
Std:XII (F,G) FN   Commerce   Time: 1.15 hrs

I. Choose the correct answer: 5x1=5
1. Off the job training is given _____.
    a) in the class room   b) outside the factory
    c) in the playground   d) on oft days
2. Recruitment bridges gap between _____ and _____.
    a) job seeker and agent   b) job seeker and job provider
    c) job provider and owner   d) owner and servant
3. DIN stands for _____.
    a) Director Identification Number
    b) Dividend Identification Number
    c) Declaration Identification Number
    d) None of the above
4. Case study method is _____ type of trainee.
    a) Hands on training   b) both theory and practical training
    c) observation training   d) only theoretical training
5. _____ is a dynamic and resilient market.
    a) Capital market   b) Financial market
    c) Industrial market   d) none of the above

II. Answer any 5 of the following: 5x2=10
6. Who can be executive director?
7. Define Product.
8. State e-learning method.
9. List the benefits of external source of recruitment.
10. Write a note on financial market.
11. Give any two internal factors affecting the price of
    product/service.

III. Answer any 5 of the following: 5x3=15
12. When are alternative directors appointed?
13. What is the need for market and explain the concept of
    marketing?
14. What do you mean by on the job training?
15. State the steps in recruitment process.
16. Bring out the scope of financial market in India.
17. What are the objectives of marketing?

IV. Answer any 2 of the following: 2x5=10
18. State the qualifications of directors.
19. Narrate the elements of marketing mix.
20. What are the benefits of training?

27.11.19   Comprehensive Revision Programme-2 Marks:40
Std:XII-H (AN)   Commerce   Time: 1.15 hrs

I. Choose the correct answer: 5x1=5
1. Vestibule training is provided _____.
    a) on the job   b) by the committee
    c) in a situation similar to actual working environment
    d) in classroom
2. Recruitment is the process of identifying _____.
    a) right job   b) right man c) right man for right job
    d) right man with right job
3. Section _____ prohibits to act both a managing director and
    a manager simultaneously.
    a) 194   b) 195   c) 196   d) 197
4. When trainees are trained by supervisor or by superior at the job
    is called _____.
    a) refresher training   b) vestibule training
    c) role play   d) apprenticeship training
5. Treasury bills are issued for _____ term.
    a) short   b) medium   c) long   d) any of the above

II. Answer any 5 of the following: 5x2=10
6. Who is called as managing director?
7. Define marketing mix.
8. What is role play?
9. Give the meaning of recruitment.
10. What are the components of organized sectors?
11. Define product.

III. Answer any 5 of the following: 5x3=15
12. Differentiate executive and non-executive directors.
13. What are the objectives of marketing?
14. Write short note on trainer and trainee.
15. What are the features of internal source of recruitment?
16. Give the meaning and definition of financial market.
17. What do you mean by marketing mix? Explain two elements.

IV. Answer any 2 of the following: 2x5=10
18. What are the duties of directors?
19. Why the marketing is important to the society and individual
    firm? Explain.
20. Discuss the various types of financial assets.

27.11.19   Comprehensive Revision Programme-2   Marks: 40

Std: XII (C-E) AN   Chemistry   Time:1.15 hrs

I. Choose the correct answer: 5x1=5

1. Zinc can be coated on iron to produce galvanized iron but the reverse is not possible. It is because

    a) Zinc has lower melting point than iron

    b) Zinc has lower negative electrode potential than iron

    c) Zinc has lower negative electrode potential than iron

    d) Zinc has higher negative electrode potential than iron

2. The addition of a catalyst during a chemical reaction alters which of the following quantities?

  a) Enthalpy b) Activation energy c) Entropy d) Internal energy

3. The half life period of a first order reaction is 10 minutes. Then its rate constant is _____.

    a) 6.93×10^2 min^{-1} b) 6.932×10^{-2} min^{-1}

    c) 0.693×10^{-2} min^{-1} d) 69.3×10^{-1} min^{-1}

4. The ratio of close packed atoms to tetrahedral hole in cubic packing is _____.

    a) 1:1   b) 1:2   c) 2:1   d) 1:4

5. The wavelength of x-ray is in the order of _____.

    a) 10^{-8} cm   b) 10^{-10} cm   c) 10^{-8} cm   d) 10^{-10} cm

II. Answer any 5 in one or two sentences: 5x2=10

6. Ionic solids conduct electricity in molten state but not in solid state. Explain.

7. Define Packing efficiency.

8. Show that for a zero order reaction half life is dependent on initial concentration.

9. Write Arrhenius equation and explain the terms involved.

10. State Faraday's first law of electrolysis.

11. Ionic conductance at infinite dilution of Al^{3+} and SO_4^{2-} are 189 and 160 mho cm^2 equi^{-1}. Calculate the equivalent conductance of the electrolyte $Al_2(SO_4)_3$ at infinite dilution.

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

12. How are electrochemical cells classified?

13. Show that SHE can act as both anode and cathode.

14. Write a note on Schottky defect.

15. Give the properties of ionic crystals.

16. Prove that for a first order reaction the time required for the completion of 99% of the reaction is ten times its half life period.

17. Give characteristics of first order reaction.

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

18. How will you determine the conductivity of electrolytic solution using a Wheatstone bridge?

19. Calculate the packing efficiency in FCC.

20. i) Differentiate order and molecularity.

    ii) Define average and instantaneous rate.

27.11.19   Comprehensive Revision Programme-2   Marks:40

Std:XII-H [FN]   English   Time:1.15mins

I. Choose the most appropriate synonyms of the underline word from the options given below: 16x½=8

1. And, the rest many will end up as mental or physical <u>cripples</u>

    a. disciples   b. scribbles   c. disables   d. trouble

2. In some countries trapot are fitted with little <u>dangling</u> baskets.

    a. hanging   b. draining   c. dripping   d. string

3. I thought you <u>picked</u> fruit for a living

    a. kicked   b. packed   c. bought   d. chose

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

4. One boy had on a <u>worn</u> jersey and cut off Khaki pants

    a. torn   b. old   c. faded   d. new

5. Predicting the <u>arrival</u> of vistors ___.

    a. journey   b. departure c. migration d. perusal

6. He had a <u>malignant</u> humour of the bone

    a. deadly   b. fatal   c. mortal   d. benign

Fill in the blanks with suitable words given in the brackets:

7. The Air ____ has learnt the _____ art of Judo. (Martial/Marshal)

Form a new word by adding a suitable prefix to the given route word

8. Manage

a. in ____   b. un ____   c. re ____   d. Mis ____

Fill in the blanks with the correct form of tense:

9. Scientists predict that by 2050, man ____ on Mars (land).

Fill in the blanks with the suitable modal verb:

10. The patient is crictical. He ____ be taken to the hospital (compulsion)

Fill in the blanks with the suitable semi-modal:

11. My sister ____ pray the guitar when the war nine.

12. State the Adverb form of the word "appreciation".

    a. appreciate   b. appreciative   c. appreciatively

Fill in the blanks with the correct preposition:

13. It is easy to work ___ the aegis of visionary leader.

    a. with   b. over   c. among   d. under

14. _____ Gandhiji ahimed means infinite love.

  (in favour of, incase of, according to, on behalf of)

15. Choose the right combination of the given blended words:

  Vegeburger

    a. vege + burger   b. vegetation + burger

    c. vegetable + burger   d. veggie + burger

Choose the correct question tag from the options given below:

16. Let us go to Ooty ____.

  a. need we? b. shall we? c. shouldn't we? d. mustn't we?

II. Read the following sets of poetic lines and answer the questions below: 6x1=6

    "Then the whining school boy, with his satchel

    And shining morning fall, creeping like snail unwillingly to school"

17. What are the characteristics of this stage".

18. Which figure of speech has been employed in the second line?

    "Fear, trembling hope, and dream, the skeleton,

    And Time the shadow", and thought weal the verie

    That would thy beauty fain, oh fair rehearie,

    May love defend tree from oblivion's curve

19. What does the poet mean by the expression 'May love defend thee from oblivion's curve?

20. What does the expression 'Fain' convey?

"Oh then our maze of tunnelled stone

Grew thin and treacherous as air,

The castle was lost without a groan

The famous citadel over thrown

21. Bring out the contrast in the first two lines.

22. Identify the figure of speech in the first line.

III. Explain the following with reference to the context: [Any one]

1x3=3

23. How can this shameful tale he told?

24. It is the tree's lament, an eerie speech.

25. Jealous in honour, sudden and quick in quarrel

Seeking the bubble reputation"

IV. Do as directed: (Any two)   2x2=4

26. Suresh said, "My sister is coming the day after tomorrow".

(Change to indirect speech)

27. Combine the sentence and rewrite them using the words

given in the brackets:

Artificially flavoured juices are hazardous to health. Moreover,

they lead to kidney problems. (and)

28. Change the following sentence into passive voice:

How did you do the experiment?

V. Answer the following: [Any one]   1x3=3

29. Describe the process of installing a computer in your study

room.   (OR)

30. Obtaining a demand draft from a bank.

VI. Answer the following: [Any two]   2x3=6

31. What happened when the doctor couple were crossing the

street?

32. Why should tea be directly added to the pot?

33. How did the narrator keep the boys on Sunday?

VII. Write a paragraph in about 150 words: 1x5=5

34. Describe the reminiscences of the poet, when she sees the

Casuarina tree.   (OR)

35. Give an account of the medical problems for which the two

boys were hospitalized.

VI. Write a paragraph in about 150 words: 1x5=5

36. Trace the bond of friendship between Baldwin and Gresham.

Explain why Baldwin wished to attribute some credit to his

friend.

(OR)

37. Water is the elixir of life. Substantiate the statement with

reference to the story of "Life of Pi:

27.11.19   Comprehensive Revision Programme-2 Marks:40

Std:XI [F,G,I,J] AN   English   Time:

I. Answer all the questions: 16x½=8

Choose the correct synonyms from the underlined words from the option below.

1. .... by their remarkable <u>demeanour</u>.
    a. physical   b. appearance c. modest   d. misbehaviour
2. In a time of <u>rationing</u>.
    a. scarce   b. hanging freely   c. plenty   d. hated
3. Suffering seems so cruelly <u>prevalent</u> in the world.
    a. very great   b. torn c. uncommon d. common

Choose the correct Antonyms from the underlined words from the option below:

4. Jacopo was <u>lively</u> as a squirrel.
    a. active   b. inactive   c. causally   d. seriously
5. Teapots are fitted with little <u>dangling</u> basket.
    a. steadily   b. loose   c. several   d. obvious
6. Because the business of living is joy in the real sense of the word not just something for pleasure, <u>amusement</u> and recreation.
    a. jolly   b. happiness   c. boredom   d. interesting
7. Add suitable question Tag
    Don't commit this mistake again ___?
    a. Don't you   b. won't you   c. will you   d. Did you
8. Choose the proper derivate for -"obey".
    a. obeyment   b. in obey   c. dis obey   d. be obey
9. Fill in the blanks with the correct form of the verbs given in the brackets.
    My Mother was tired yesterday because she _____ well the night before. (not sleep)
10. Fill in the blanks with the suitable preposition .
    Hunters walked _____ the forest.
    a. along   b. since   c. through   d. under
11. Fill in the blanks with suitable prepositional phrase.
    Many tourists visited Ooty _____ heavy rains.
    a. in favour of b. Instead of   c. In spite of   d. on the whole
12. Fill in the blanks with suitable semi-model.
    How ____ you call me names?
13. Fill in the blanks with suitable model auxiliary.
    You _____ be Joking.
14. Fill in the blanks with suitable prepositions.
    An _____ area has ___ people. (industrial/industrious)

15. Form a new word by adding a suitable prefix to the root word "legitimate".
    a. pre   b. inter   c. un   d. if
16. Form a phrase with the following pair of noun: Glory+Victory.

II. Read the set of poetic lines and answer the questions: 3x2=6

17. Our gates were strong, our walls were thick,
    So smooth and high, no man could win.
    a. How safe was the castle?
    b. What was the firm belief of the Soldiers?
18. A gray baboon sits statue-like alone
    a. Where is the baboon sitting?
    b. Mention the figure.
19. Seeking the bubble reputation.
    Even in the cannon's mouth.
    a. What is the solider ready to do?
    b. Mention the figure of speech.

III. Explain with reference to the context.(any one)   1x3=3

20. Our only enemy was gold.
21. It is the trees lament, an eerie speech.

IV. Do as directed: (any 2).   2x2=4

22. Combine the sentences and rewrite them using the words in the bracket.
    The culprit was caught. Immediately he was taken to the police station (as soon as).
23. Report the following dialogues:
    Teacher: Why are you late?
    Divya: I missed the bus.
24. Change the following sentence into Active Voice.
    Goodness is expectedly shortly.

V. Answer any two of the following briefly: 2x3=6

25. Why does Dr. Barnard find suffering of children heartbreaking?
26. Why does the author advice removing cream from the milk?
27. What were the various jobs undertaken by the little boys.

VI. Answer the following in a Paragraph of about 200 words. 1x5=5

28. a. Justify the little of the story.
    'Two Gentlemen of Verona'   (OR)
    b. Write an appreciation of the poem 'Our Casuarina Tree'.

VI. Answer the following in a paragraph of about 200 words: 1x5=5

29. a. Compare and contrast the main character Aksionov and Makar Semeyonich in the story.   (OR)
    b. Trace the bond of friendship between Baldwin and Gresham. Explain why Baldwin wished to attribute some credit to his friend

VII. 30. Describe the process of installing a computer.   (3)

PART-A

I. Choose the correct answer: 10x1=10

1. Revaluation a/c is a
   a. Real A/c   b. Nominal A/c   c. Personal A/c   d. Impersonal A/c

2. At the time of admission, the goodwill brought by the New partner may be credited to the capital accounts of
   a. all the partners   b. the old partners
   c. the new partner   d. the sacrificing partners

3. On revaluation, the increase in the value of asset leads to
   a. Gain   b. Loss   c. Expenses   d. None of these

4. In the absence of an agreement partners are entitled to
   a. salary   b. commission
   c. Interest on loan   d. the sacrificing partners

5. As per the Indian Partnership Act,1932 the rate of interest allowed on loans advanced by partners is
   a. 8% per annum   b. 12% per annum
   c. 5% per annum   d. 6% per annum

6. Which of the following is shown in profit and appropriation account?
   a. Office expenses   b. salary of staff
   c. Partner's salary   d. Interest on bank loan

7. In the absence of partnership deed, profits of the firm will be shared by the partners is
   a. Equal ratio b. capital ratio c. Both a and b d. None of these

8. When the average profit is Rs 25,000 and the Normal profit is Rs 15,000, super profit is
   a. Rs 25,000 b. Rs 5,000   c. Rs 10,000 d. Rs 15,000

9. The average rate of return of similar concerns is considered as
   a. Average profit   b. Normal rate of return
   c. Expected rate of return   d. None of these

10. Super profit is the difference between
   a. Capital employed and average profit
   b. Assets and liabilities
   c. Average profit and normal profit
   d. Current year's profit and average profit

PART-B

II. Answer the following questions: 2x2=4

1. What is super profit?

2. What is partnership deed?

PART-C

III. Answer the following questions: 2x3=6

1. From the following information prepare capital accounts of partners Mannan and Sevagan, when their capitals are fluctuating.

Particulars	Mannan	Sevagan
Capital on 1st Jan (Cr.balance)	2,00,000	1,75,000
Capital on 1st Jan (Cr.balance)	40,000	35,000
Drawings	1,000	500
Interest on drawings	21,000	16,500
Share of profit	12,000	10,500
Interest on Capital	18,000	-
Salary	-	2500
Commission		

2. Find out the value of Goodwill at three years purchase of weighted average profit of last four years.

Year	Profit	Weight
2015	10,000	1
2016	12,000	2
2017	16,000	3
2018	18,000	4

IV. Answer the following questions: 2x5=10

1. Sai, Sharmila and Rudra are partners, sharing profit and losses in the ration of 5:3:2. As from 1st 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.

   a. Increase the value of premises by Rs 60,000.

   b. Depreciate stock by Rs 5,000, furniture by Rs 2,000 and Machinery Rs 2,500.

   c. provide for an Outstanding liability of Rs 500 pass journal entries and prepare revaluation accounts.

2. From the following information, complete the value of Goodwill by capitalising Super profit:

   a. Capital employed is Rs 4,00,000.

   b. Normal rate of return is 10%.

   c. Profit for 2016: Rs 62,000, 2017: Rs 61,000 and 2018: Rs 63,000.

V. Answer any One: 1x10=10

1. Ameer and Raja are partners sharing profits in the ratio of 3:2. Their balance sheet is shown as under on 31.12.2018.

Liabilities	Rs.	Rs.	Assets	Rs.	Rs.
Capital			Machinery		60,000
Accounts:			Furniture		40,000
Ameer	80,000		Debtors		30,000
Raja	70,000	1,50,000	Stock		10,000
Reserve fund		15,000	Prepaid		40,000
Creditors		35,000	insurance		
			Cash at bank		20,000
		2,00,000			2,00,000

Rohit is admitted as a new partner who introduces a capital of Rs. 30,000 for his 1/5 share in Future profits. He brings Rs 10,000 for his share of Goodwill. Followings revaluations are made:

   a. Stock is to be appreciated to Rs 14,000.

   b. Furniture is to be depreciated by 5%.

   c. Machinery is to be revalued at Rs 80,000.

Prepare the necessary ledger accounts and the balance sheet after the admission.

2. Dinesh and Sugumar entered into a partnership agreement an 1st January 2018, Dinesh contributing Rs.1,20,000 as capital the agreement provided that:

   a. Profit and losses to be shared in the ratio 2:1 as between Dinesh and Sugumar.

   b. Partners to be entitled to interest on Capital @ 4% p.a.

   c. Interest on drawing to be charged Dinesh: Rs.60,000 for the year and

   d. Sugumar to receive a Commission of Rs.80,000.

   During the year ended on 31st December 2018, the firm made a profit of Rs.2,20,000 before adjustment of interest, salary and commission.

I. Choose the correct answer: 10x1=10

1. If $u(x,y)=e^{x^2+y^2}$, then $\frac{\partial u}{\partial x}$ is equal to _____.

    a) $e^{x^2+y^2}$ b) 2xu   c) x^2u d) y^2u

2. If $\omega(x,y)=x^y$; x>0 then $\frac{\partial \omega}{\partial x}$ is equal to _____.

    a) $x^y \log x$ b) $y \log x$ c) yx^{y-1} d) $x \log y$

3. The change in the surface area $S=6x^2$ of a cube when the edge length varies from x_0 to x_0+dx is _____.

    a) $12x_0+dx$ b) $12x_0\ dx$ c) $6x_0\ dx$ d) $6x_0+dx$

4. If $u(x,y)=x^2+3xy+y-2019$ then $\frac{\partial u}{\partial x}(4, -5)$ is equal to _____.

    a) -4   b) -3   c) -7   d) 13

5. Linear approximation for g(x)=cos x at $x=\frac{\pi}{2}$ is _____.

    a) $x+\frac{\pi}{2}$ b) $-x+\frac{\pi}{2}$ c) $x-\frac{\pi}{2}$ d) $-x-\frac{\pi}{2}$

6. If f(x,y,z)=xy+yz+zx, then f_x-F_z is equal to _____.

    a) z-x   b) y-z   c) x-z   d) y-x

7. The approximate change in the volume V of a cube of side x metres caused by increasing the side by 1% is _____.

    a) 0.3 xdxm³ b) 0.03 xm³   c) 0.03 x²m³   d) 0.03 x³m³

8. If $P(x,y)=x^3-2y^3+5x^2y$, is a homogeneous function of degree

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

9. If $g(x)=x^2+\sin x$, then the differential dg is _____.

    a) (2x+cos x)   b) (2x+cos x)dx   c) 2x   d) (2x+cos x)dy

10. Absolute error=_____

    a) Actual value b) Actual value + Approximate value

    c) Actual value – Approximate value

    d) Approximate value – Actual value

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

11. Find Δf and df for the function f, for the indicated values of x, Δx if $f(x)=x^3-2x^2$, x=2, Δx=dx=0.5

12. Let f(x, y)=$\frac{y^2-xy}{\sqrt{x}-\sqrt{y}}$ for (x, y)≠(0, 0) show that $\lim_{(x,y)\to(0,0)} f(x,y) = 0$

13. Find the partial derivative of at the indicated points g(x,y)=3x²+y²+5x+2, (1, -2)

14. If $v(x,y)=x^2-xy+\frac{1}{4}y^2+7$, x,y∈R find the differential dv.

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

15. Prove that $g(x, y)=x \log\left(\frac{y}{x}\right)$ is homogeneous, what is the degree? Verify Euler's theorem for g.

16. Let $Z(x,y)=x^3-3x^2y^2$, where x=se^t, y=se^{-t}, s, t∈R find $\frac{\partial z}{\partial s}$

17. Use linear approximation to find the approximal value of $\sqrt[3]{26}$

18. The relation between the number of words y a person learns in x hours is given by $y=52\sqrt{x}$, 0≤x≤9. What is the approximate number of words learned when x changes from (i) 1 to 1.1 hour (ii) 4 to 4.1 hour?

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

19. If $u=\sin^{-1}\left(\frac{x+y}{\sqrt{x}+\sqrt{y}}\right)$ show that $x\frac{\partial u}{\partial x}+y\frac{\partial u}{\partial y}=\frac{1}{2}\tan u$

20. If $\omega(x,y,z)=x^2+y^2+z^2$, x=e^t, y=e^t sin t and z=e^t cos t find $\frac{d\omega}{dt}$

21. Let $\omega(x,y,z)=\frac{1}{\sqrt{x^2+y^2+z^2}}$, (x,y,z)≠(0,0,0) show that $\frac{\partial^2 \omega}{\partial x^2}+\frac{\partial^2 \omega}{\partial y^2}+\frac{\partial^2 \omega}{\partial z^2}=0$

22. For g(x,y)=log(5x+3y) find g_{xy}, g_{xx}, g_{yy} and g_{yx}.