2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Draw a world map showing the different types of Biomes. 8

2. Draw a energy flow diagram of Nitrogen Cycle. 6

3. Draw a diagram showing the biochemical cycle of carbon. 6

4. Practical Record. 2

5. Viva-Voce. 3

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Answer any ***three*** of the following : 5 × 3

   a) What is an Ethnography ? Differentiate Traditional and Alternative Ethnography ?

   b) What are the objectives of the study in the given Ethnographic book's of Nuer Tribe.

   c) What are the methods and techniques used by Author for study of the Nuer Tribe.

   d) Give the brief description of the mode of livelihood of Nuer Tribe of Africa.

2. Practical Record. 5

3. Viva-Voce. 5

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Estimate the amount of Oxalic acid present in the supplied solution using a standard solution of $KMnO_4$ of strength _____ 10

   OR

   Estimate the amount of Fe(II) ions present in the supplied solution using a standard solution of $K_2Cr_2O_7$ of strength _____.

   OR

   Estimate the amount of Cu(II) ions present in the supplied $CuSO_4$ solution using $Na_2S_2O_3$ solution. The strength of $K_2Cr_2P_7$ solution supplied is _____.

2. Identify the extra element present in the unknown organic compound. 5

3. Viva-Voce 6

4. Record. 4

III-UG-Chem(GE-B)-I (Pr.)

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer *all* questions

1. Estimate the amount of Oxalic acid present in the supplied solution using a standard solution of $KMnO_4$ of strength _____ 10

   OR

   Estimate the amount of Fe(II) ions present in the supplied solution using a standard solution of $K_2Cr_2O_7$ of strength _____.

   OR

   Estimate the amount of Cu(II) ions present in the supplied $CuSO_4$ solution using $Na_2S_2O_3$ solution. The strength of $K_2Cr_2P_7$ solution supplied is _____.

2. Identify the extra element present in the unknown organic compound. 5

3. Viva-Voce 6

4. Record. 4

V-411-1.6 ❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Estimate the amount of Copper present in the supplied $CuSO_4$ solution iodimetrically using $Na_2S_2O_3$ solution. The strength of $K_2 Cr_2 O_7$ solution supplied is _____. 10

   OR

   Estimate the amount of Chlorine present in the supplied bleaching powder iodimetrically. The strength of $K_2 Cr_2 O_7$ solution supplied is _____.

2. Prepare and submit 2 gms of Potash Alum. 5

3. Viva-Voce. 6

4. Record. 4

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Answer any ***one*** of the folllowing as per instruction of the examiners : 8

   a) Study and describe six common birds from different orders.

   b) Study and describe the different types of beaks and claws of birds.

   c) Study and describe the different types of feathers of birds.

2. Identify with comments on the spots I ot VI. 1½×6
   (4 museum specimen and 2 permanent slides to be set as per the syllabus)

3. Practical record. 4

4. Viva Voce. 4

Process A : 3, 7, 5, 6, 5, 4, 4, 5, 3, 3

Process B : 8, 5, 7, 8, 3, 2, 7, 6, 5, 7

Test of the process equality can be regarded as same.

c) A sample size of 1000 bulbs of a company were tested and found the average life of a bulb was 2000 hrs and S.D. was found to be 50 hours. Estimate the no. of bulbs of that company are likely to glow for

i) more than 2100 hrs.

ii) less than 1850 hours

iii) more than 1900 hrs but within 2050 hours.

d) The following data show the distribution of digits in number chosen at random from a telephone directory.

Digits	:	0,	1,	2,	3,	4.	5,	6,	7,	8,	9,	10
Frequency	:	1026,	1107,	997,	966,	1075,	933,	1107	972,	964,	8530	

Total = 10,000

Test whether the digits may be taken to occur equally frequntly in the directory (Test goodness of fit).

3. Record. 3

4. Viva-Voce. 4

❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Answer any ***two*** of the following : 9 × 2

a) Value of Fat percentage (%) on samples of milk of Cows and Buffaloes have been reported. The data is as follows :

Fat % in cows :

5.3, 4.5, 5.8, 3.8, 5, 5.1, 9.7, 4.5, 4.9, 6.1, 5.2, 5.6, 4.9, 4.2

Fat % in Buffaloes

8.1, 7.7, 8.4, 9.3, 7.5, 7.8, 7.3, 9.5. 7.4, 3.2, 8.3, 9.1, 9.5, 7.5, 7.3, 8.4, 8.

Test whether the data is significant or not

i) Average fat % in cow's milk is S.

ii) Average fat % in cow's milk is less than fat % of buffaloes milk.

b) Given belows are the quantities of 10 items in some units produced by 2 process A and B.

Rs.1.08. The average hourly wage of a sample of 200 workers in plant 'B' was Rs.2.87 with a S.D of Rs. Rs.1.28. Can an applicant safely assume what the hourly wage paid by plant 'B' are higher than those paid by Plant 'A'

d) Two researchers adopted different sampling techniques while investigating the same group of students to find the number of students falling in different intelligence levels. The result are follows :

Researcher	No. of students in each level				Total
	Below Average	Average	Above Average	Geneus	
X	86	60	44	10	200
Y	40	33	25	2	100
Total	126	93	69	12	300

Would you say that the sampling techniques adopted by the two researchers are significantly different at 5% level of significance.

2. Record 3

3. Viva-Voce. 4

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Answer any ***two*** of the following : 9 × 2

a) Find the multiple linear regression equation of X_1 on X_2 and X_3 from the data relating to three variables given below :

X_1	24	28	29	32	38	43	58
X_2	15	9	7	5	4	3	2
X_3	20	21	24	25	26	27	29

b) Calculate the coeffficient of association from the following data :

i) (A) = 48, (B) = 84, ($\alpha\beta$) = 16, N = 112

ii) (A) = 50, (B) = 70, (AB) = 50, N = 110

iii) (A) = 70, (B) = 80, (AB) = 40, N = 120

c) The average hourly wage of a sample of 150 workers in a plant 'A' was Rs.2.56 with a S.D of

7. Determine coefficient of thermal conductivity of copper by Angstrom's method. 15

Distribution of Marks

Experiment	15
Viva	06
Record	04

❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Attempt any ***one*** question

1. Determine Joule's Mechanical equivalent of Heat (J) by using Calorie-meter. 15

2. Determine coefficient of thermal conductivity of Cu by using Searle's Apparatus. 15

3. Determine coefficient of thermal conductivity of given bad conductor by Lee and Charlton's disc method. 15

4. Determine Joule's mechanical equivalent of Heat (J) by Callender and Barne's constant flow method. 15

5. Determine the temperature coefficient of resistance by Platinum Resistance Thermometer (PRT). 15

6. Study the variation of Thermo-e.m.f. of a Thermo-couple with temperature difference of its two junction. 15

2. Write a PL/SQL program to swap two numbers without using intermediate variable. 5

3. Create and invoke a procedure QUERY–EMP to query a particular EMP record whose employee code is passed as parameter. 5

4. Create and invoke the RETURN_SAL function to return the salary of an employee to a host variable. Pass the employee code as parameter. 5

Record 4

Viva-Voce 6

❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer any ***three*** questions

1. Write the SQL commands for the following considering DEPT and EMP table. 5

   a) Display the name of all empoyees who have 'S' in their name in the EMP table.

   b) Display the employee name and their manager name of whom they are working.

   c) Discuss the details of those employees whose salary is more than BLAKE's salary.

   d) i) Create a STUDENT table based on the following table structure.

ROLL	NUMBER	2	PRIMARY KEY
NAME	VARCHAR2	10	NOT NULL
DOB	DATE		

   ii) Insert few records.

   iii) Add a new column EMAIL in the above table.

   iv) Remove the table from the database.

Simplify the Boolean expreession

$$Y = AB + \bar{A}B + \bar{A}\bar{B}$$

and design the necessary circuit for the reduced equation.

2. Practical Record 04

3. Viva-Voce 06

❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Draw the necessary diagram for AND, OR, NAND and NOR gates and verify the Truth Table. 8

OR

Design a switch (NOT) circuit using a transistor.

2. Perform any ***two*** of the following : 3.5 × 2

   i) Test the given diode and Transistor using multimeter.

   ii) Write the PIN configuration of IC 7408, IC 7432 and IC 7404. Verify each logic gate separately.

   iii) Draw the circuit diagram for the following Truth Table and design it on board.

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	1

iv)

2. a) Using MATLAB software, find the solution of the diffusion equation

$$\frac{\partial u}{\partial t} - \frac{\partial^2 u}{\partial x^2} = 0,$$

where $u(x,0) = \cos \pi x$, $u(0, t) = a$, $u(L, t) = b$;

$0 < x < L$, $t > 0$

and find the surface. 7½

OR

b) Using MATLAB software find the solution of one dimensional wave equation $\frac{\partial^2 u}{\partial t^2} - c^2 \frac{\partial^2 u}{\partial x^2} = 0$

where $u(x,0) = 0.5 - 0.5\cos\left(\frac{2\pi x}{L}\right)$,

$$\frac{\partial}{\partial t} u(x,0) = 0$$

and the boundary conditions

$u(0, t) = 0$, $u(L, t) = 0$

3. Record. 4

4. Viva-Voce 6

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. a) Using MATLAB software, find the solution of the Ist order differential equation

$$\frac{\partial v}{\partial t} = v^2, \quad v(0) = \frac{1}{1+s^2}$$

and plot the integral surface. 7½

OR

b) Using MATLAB software, find the general solution of the non homogeneous system of ordinary differential equation

$$\frac{dx}{dt} = x + 2y + 1, \quad \frac{dy}{dt} = -x + y + 1$$

where $x(0) = 2$, $y(0) = -1$ 7½

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Analyse the pattern of settlement using neighbour Method. 6

2. Interpret the cultural landscape on Toposheet. 6

3. Show the size and spacing of cities using rank-size rule. 8

4. Practical Record. 2

5. Viva-Voce. 3

c) Obtain the lines of regression from the following data :

x	3	5	6	9	11
y	5	4	3	7	8

Also find the estimated value of x for y = 7 and the estimated value of y for x = 6.

d) Calculating he coefficient of rank correlaion of the following data of marks of 10 students in Math and Statistics.

Students No.	Marks in Statistics	Marks in Mahematics
1	52	62
2	63	53
3	45	51
4	36	25
5	72	79
6	65	43
7	45	60
8	24	33
9	24	35
10	49	52

2. Record 3

3. Viva-Voce 4

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Answer any ***two*** of the following : 9 × 2

a) From the following frequency table, find the value of x if mean is 23.5.

Class Interval	*Frequency*
50 - 49	x – 4
40 - 49	x – 2
30-39	x + 3
20-29	x + 5
10-19	x + 10
0-9	x – 2

b) In six consecutive one-day matches two batsmen have made the following scores :

A	78	39	26	19	66	40
B	38	40	36	19	62	25

Who has the better run average or which one of them is moe dependable ?

III-UG-Zool(GE-B)-I (Pr.)

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. To detect the adulteration in the samples given : 8

   i) Ghee

   ii) Sugar

   iii) Tea leaves

   iv) Turmeric.

2. To estimate the Calcium in food by titrimetry. 8

3. Practical Record. 4

4. Viva-Voce. 5

V-412-0.1 ❐❐

III-UG-Edn(GE-B)-I (Pr.)

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Write a term paper on Rabindranath Tagore on Critically analysing his educational thought. 10

   OR

   Prepare a term paper on any contemporary issue.

2. Record. 10

3. Viva-Voce. 5

V-408-0.7 ❐❐

6. Study motion of a spring and calculate spring constant and value of 'g'. 15

7. Determine rigidity modulus 'η' of a given wire using statical method. 15

Record	04
Viva-Voce	06

❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Perform any ***one*** experiment

1. a) Measure the length of the given cylinder using Vernier caliper. 5

   b) Measure the diameter of the given wire using screw gauge. 5

   c) Measure the diameter of the given rubber tube by using travelling microscope. 5

2. Determine moment of Inertia of a fly wheel. 15

3. Determine Elastic constant 'Y' of a wire by Searle's method. 15

4. Determine value of 'g' by bar pendulum. 15

5. Determine value of 'g' by Kater's pendulum. 15

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Make a temporary preparation of the supplied Specimen 'A'. Draw labelled diagrams and identify with reasons. 6

2. Make a temporary preparation of the supplied Specimen 'B'. Study the anatomy and comment on the adaptive features. Give labelled diagrams. 6

3. Draw and identify the materials/microslides/ photographs (C,D,E) on spot. 6

4. Viva Voce. 5

5. Practical record. 2

❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Test the presence of microchemical in the sample specimen 'A'. Identify with reasons. 6

2. Test the presence of microchemical in the sample specimen 'B' Identify with reasons. 6

3. Draw and identify the materials on spot 'C', 'D', 'E' and 'F' with their economic importance. 6

4. Viva-Voce. 5

5. Record. 2

❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Detect the functional group present in the supplied organic compound. 8

2. Prepare and submit 2 gms of pure and dry benzoyl derivative for the supplied organic compound. Recrystallise the compound and determine its M.P. 10

   OR

   Prepare and submit 2 gms of pure and dry acetyl derivative of the supplied organic compound Recrystalize the compound and determine its M.P.

3. Viva-Voce. 4

4. Record. 3

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Prepare a temporary mount of any one tissue as per the instruction of the examiners. Draw a labelled diagram and comment on the mount. 8

2. Identify and comment with lebelled diagrams on the spots I to VI. 1½ × 6

3. Practical Record. 4

4. Viva-Voce. 4

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Calculate the χ^2 (Chi-square) value of the given sample 'A'. Explain whether the result support Mendel's prediction or not ? 8

2. Analyse the supplied chart 'B'. Identify the trait and gene. 4

3. Draw and identify the photograph / microslide ('C', 'D' and 'E') on spot. 6

4. Viva-Voce. 5

5. Practical Record. 2

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Determine the distribution coefficient of acetic acid / benzoic acid in water and cyclohexane. 15

OR

Determine the rate constant for the acid hydrolysis of methylacetate with hydrochloric acid.

OR

Determine the rate constant for the acid hydrolysis of methylacetate with sulphuric acid.

OR

Determine the critical solution temperature and composition of phenol water system.

2. Viva-Voce. 6

3. Record. 4

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Examine and describe with labelled diagram the skull of any one mammal (Herbivorous / Carnivorous) as per the instruction of the examiners. 8

2. Identify and comment with labelled diagram of spots I to VI. 1½ × 6

   (4 disarticulated bones and 2 permanent slides as per the syllabus).

3. Practical Record. 4

4. Viva-Voce. 4

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Find out experimentally the D.L. for lifted weight of your subject by method of constant stimuli. 12

   OR

   Determine experimentally the R.L. of two point tactual threshold for the voler surface of the S's forearm by the method of limits. 12

2. Record. 5

3. Viva-Voce. 8

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer any ***one*** of the following using Scilab Programming.

1. a) Plot sine and cosine function using limit [–10, 10] with space of 0.01 unit. 7½

   b) Exlain the vector operations in scilab with suitable examples. 7½

2. Write a program in Scilab to calculate resistance R from Ohm's law and plot it on Graphic window. 15

3. Using the basic knowledge of plotting in scilab aplot the following functions with appropriate limit

   (i) $Y = x^2$ (ii) $Y = e^{-x}$ (iii) $Y = e^{-x^2}$ 15

4. Defining function in Scilab plot a function in 3D.

   $z = f(x, y)$

Experiment	15
Viva-Voce	06
Record	04

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. a) Assess and compare the academic performance of boys and girls in four school subjects and report the differences by descriptive statistical analysis. 12

   OR

   b) Find out the group difference of boys and girls, using hypothetical data and analyze the result through SPSS. 12

2. Record. 5

3. Viva-Voce 8

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. a) Write a report on class room Interaction. 10

OR

b) Prepare an observational matrix through Flander Interaction analysis by analysing the behaviour of a teacher in the class room. (From your previous experience).

2. Record. 10

3. Viva-voce 5

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. a) Measure the attitude of three boys and three girls towards women by using 'Spence, Helmrich and Stapps' Attitude towards Women scale. 12

OR

b) Assess the ethical values of four adolescents by using Donelson's Ethical Position Questionnaire (EPQ). 12

2. Record. 5

3. Viva-Voce 8

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. a) Write a lesson plan on any topic of your method by Herbatian approach. 10

OR

b) Prepare a lesson plan on any topic of your method by 5E Model.

2. Record. 10

3. Viva-Voce 5

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Measure the environmental awareness and attitude of four college students using "Bob Simpson's Environmental Awareness Questionnaire". 12

OR

Assess the level of 'Environmental Literacy' of four college students by using a qustionnaire of environmental literacy in the Indian context. 12

2. Record. 5

3. Viva-Voce. 8

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer any ***three*** questions

1. Write a shell scipt to display the multiplication table of a number entered by user. 5
2. Write a shell script to reverse a number entered by user. 5
3. Write a shell script to check whether a year entered from user is a leap year or not. 5
4. Write down the Linux command to perform the following : 5
   a) Display all users who are currently working on the system.
   b) Display all the contents of the current directory.
   c) Create a directory of your name.
   d) Change the name of the file.
   e) Remove the directory.

Viva Voce. 4

Practical record. 6

❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Make statistical analysis of the raw data collected on achievement scores of two schools and write a report. 10

OR

Take some raw data on your own from two schools. Prepare a table and make statistical analysis.

3. Record. 10

4. Viva-Voce. 5

❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer any ***three*** questions

1. Write a C programme to show that if any five numbers from 1 to 8 are choosen, then two of them will add to 9. (Pigeonhole Principal). 5

2. Write a C programme to generate all permutation of a string entered by user. 5

3. Write a C programme to find out the shortest path between two distinct vertices of a weighted connected graph. 5

4. Write a C program to find out the minimal spanning tree from a connected weighted graph. 5

5. Write a C programm to display all possible combination of a list of numbers entered by user. 5

6. Record and Attendance 4

7. Viva-Voce 6

2018

Full Marks - 100

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer any ***one*** question from each session

and Q.No.5 is compulsory

Morning Session

1. Demonstrate experimentally the effect of positive trasnsfer of training with a suitable experimental design. 25

2. Evaluate the subject's patterns of thought, attitudes, observational capacity and emotional responses to ambiguous test materials using Thematic Apperception Test (TAT) 25

Afternoon Session

3. Determine the intelligence level of your **'S'** by administering the Wesheler Adult Intelligence Scale (WAIS) 25

4. Assess the personality trait of your **'S'** by administering the Eysencks' personality Questionnaire (EPQ-R) 25

5. Record 20 marks

   Viva-Voce 30 marks

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Draw a map showing the world Agricultural region. 8

2. Draw an Ergograph (Data to be supplied). 6

3. Draw a map of Traffic flow. 6

4. Practical record. 2

5. Viva-Voce. 3

2018

Full Marks - 100

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Isolate 2 algal specimens (A and B) from the given algal mixture. Draw labelled diagrams and identify with reasons. 20

2. Make a temporary preparation of the supplied specimen C. Draw labelled diagram and identify with reasons. 20

3. Make a temporary preparation of the supplied specimen D. Draw labelled diagram and identify with reasons. 20

4. Identify on spot E, F, G and H with labelled diagram and reasons. 20

5. Viva-Voce. 15

6. Class Record. 5

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Identify the rocks megascopically. ($R_1 – R_6$). 9

2. Identify the rocks microscopically. ($R_7 – R_8$). 6

3. Solve the problem. (Problem to be given at the time of examination). 3

4. Lab. Record. 3

5. Viva-Voce. 4

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Identify the sedimentary rocks megascopically. ($R_1 – R_6$) 9

2. Identify the sedimentary rocks microscopically ($R_7 – R_8$) 6

3. Analyse the given grain-size data. Represent the data graphicaly and interprete. 3

4. Lab. Record. 3

5. Viva-Voce. 4

III-UG-Geog(GE-B)-I (Pr.)

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Construct a Barometer and write its uses. 6

2. Draw a graph showing interrelation between wet bulb temperature and relative humidity of a certain location. (Data to be supplied by Examiner). 8

3. Construct a Max. and Min. thermometer and explain its uses. 6

4. Pactical Record. 2

5. Vivo-voce. 3

❐❐

III-UG-Geol(CC)-VII (Pr.)

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Identify the metamorphic rocks megascopically ($R_1 - R_6$) 9

2. Identify the metamorphic rocks microscopically ($R_7 - R_8$) 6

3. Solve the ACF Problem. (Problem to be given at the time of examination). 3

4. Lab. Record. 3

5. Viva-Voce. 4

❐❐

I-PG-Phy-V (Pr)

2018

Full Marks - 100

Time - 6 Hours

The figures in the right-hand margin indicate marks

Perform any ***two*** questions using C/C^{++} programming

1. Find the root of the quadratic equation :

   $4x^2 + 6x + 2 = 0$. 30

2. Write a program to generate and print prime numbers between 1 and 100. 30

3. Write a program to calculate sum of an AP series. 30

4. Write a program to calculate the sum of GP series. 30

5. Write a program to calculate the factorial of an integer. 30

6. Write a program to calculate the infinite sum. 30

7. Write a program to find the volume of a sphere and a cube. 8

Experiment	60
Viva-Voce	24
Record	16

❐❐

III-PG-Phy-XV (Pr)

2018

Full Marks - 50

Time - 6 Hours

The figures in the right-hand margin indicate marks

Perform any ***one*** experiment

1. Study the velocity of ultrasonic waves of a liquid at different temperatures. 30

2. Study the velocity of ultrasonic waves of different liquids at a given temperature. 30

3. Study the Hall apparatus. 30

4. Determine energy gap of a supplied specimen using Four Probe method. 30

5. Study the lattice dynamics using lattice dynamic kit. 30

6. Determine the concentration of the supplied unkown solution using spectrophotometer. 30

Record	08
Viva-Voce	12

❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Take your own palm print. Label it and find out the main line formula. 10

OR

Find out your own finger ball pattern

2. Write down the procedures of ABO blood group test and mention your own blood group. 5

OR

Write down the procedures of Rh blood grouping

3. Record. 5

4. Viva-Voce. 5

❐❐

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Take the following measurements : 5

   a) Stature

   b) Nasal Height

   c) Total upper extermity length

   d) Nasal breadth.

2. Find out following indices : 5

   i) Body mass index

   ii) Nasal Index

3. Make a research design to study environmental problem in your area. 5

4. Record. 5

5. Viva-Voce. 5

❐❐

c) Find the maximum likelihood estimator of θ

i) In the Bernoulian probability distribution $F(x) = \theta^x(1-\theta)^{1-x}$ $x = 0, 1$.

ii) In the Poisson distribution

$$F(x) = \frac{e^{-\theta}\theta^x}{x!}, \; x = 0, 1, ...\infty$$

d) For a normal population with S.D. 2.5 a sample of size 10 is drawn 18, 27, 25, 32, 23, 20, 28, 30, 24, 26. Obtain 95% and 99% confidence interval for the popuation mean ?

e) Show that $\bar{X} = \sum xi / ln$ in random

Sampling from $F(x.\theta) = \begin{cases} \frac{1}{\theta} e^{-x/\theta} & 0 < x < \infty \\ 0 & \text{otherwise} \end{cases}$

where $0 < \theta < \infty$ is an m $\vee$ B estimator of θ and has variance θ^2/n.

2. Rcord. 3

3. Viva-Voce. 4

2018

Full Marks - 25

Time - 6 Hours

The figures in the right-hand margin indicate marks

Answer ***all*** questions

1. Answere any ***two*** of the following : 9×2

a) Let X_1, X_2, X_3 be a random sample of size 3 from a population with mean value μ and variance σ^2. T_1, T_2, T_3 are the estimators used to estimate μ where

$$T_1 = X_1 - X_2 + X_3, \; T_2 = 2X_1 - 3X_3 + 2X_2$$

$$T_3 = \frac{\lambda_1 X_1 + X_2 + X_3}{3}$$

i) Are T_1 and T_2 unbaised estimators ?

ii) Find λ suh that T_3 is unbaised.

iii) Which is best estimators ?

b) In a simple random sampling with replacement. Show that sample variance is the consistent estimator of population variance. i.e. $E(S^2) \to \sigma^2$