

PREVIEW QUESTION BANK

Module Name : SCPH32 Computational Biology and Bioinformatics Track - 3 TRDH - ENG
Exam Date : 26-Oct-2023 Batch : 09:30-12:30

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Objective Question				
1	998001	A population is divided into three strata so that $N_1 = 5000$, $N_2 = 2000$ and $N_3 = 3000$. Respective standard deviations are: $\sigma_1 = 15$, $\sigma_2 = 18$ and $\sigma_3 = 5$. How should a sample of size $n = 84$ be allocated to the three strata, if we want optimum allocation using disproportionate sampling design? 1. $n_1 = 5, n_2 = 2, n_3 = 1$ 2. $n_1 = 50, n_2 = 24, n_3 = 10$ 3. $n_1 = 500, n_2 = 240, n_3 = 100$ 4. $n_1 = 25, n_2 = 12, n_3 = 5$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
2	998002	Spearman's coefficient of rank correlation 1. $\frac{\frac{\sum \hat{a}_i \cdot \hat{a}_i}{n} - \left(\frac{\sum \hat{a}_i}{n} \right)^2}{\sqrt{\frac{\sum \hat{a}_i^2}{n} - \left(\frac{\sum \hat{a}_i}{n} \right)^2} \sqrt{\frac{\sum \hat{a}_i^2}{n} - \left(\frac{\sum \hat{a}_i}{n} \right)^2}}$, where all notations have usual meanings. 2. $\frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{n \cdot \sigma_X \cdot \sigma_Y}$, where all notations have usual meanings. 3. $1 - \left[\frac{6 \sum d_i^2}{n(n^2 - 1)} \right]$, where d_i = difference between ranks of ith pair of the two variables; n = number of pairs of observations. 4. $\frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum (X_i - \bar{X})^2} \cdot \sqrt{\sum (Y_i - \bar{Y})^2}}$, where all notations have usual meanings. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
3	998003		4.0	0.00

A market research survey in which 64 consumers were contacted states that 64 per cent of all consumers of a certain product were motivated by the product's advertising. Find the confidence limits for the proportion of consumers motivated by advertising in the population, given a confidence level equal to 0.95.

given that z value for 95% confidence interval is 1.96.

1. lower confidence limit is 32.24%
upper confidence limit is 45.76%
2. lower confidence limit is 22.24%
upper confidence limit is 35.76%
3. lower confidence limit is 55.00%
upper confidence limit is 45.00%
4. lower confidence limit is 52.24%
upper confidence limit is 75.76%

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

4

998004

Match List I with List II

Suppose we want to test the hypothesis that the population mean μ is equal to the hypothesised mean μ_{H_0} =100.

Alternate Hypothesis		To be read as follows	
A.	$H_a : \mu \neq \mu_{H_0}$	I.	The null hypothesis is that the population mean is equal to the hypothesis mean 100
B.	$H_a : \mu > \mu_{H_0}$	II.	The alternative hypothesis is that the population mean is not equal to 100 i.e., it may be more or less than 100
C.	$H_a : \mu < \mu_{H_0}$	III.	The alternative hypothesis is that the population mean is greater than 100
D.	$H_a : \mu = \mu_{H_0}$	IV.	The alternative hypothesis is that the population mean is less than 100

Choose the correct answer from the options given below:

1. A-I, B-II, C-III, D-IV
2. A-II, B-III, C-IV, D-I
3. A-III, B-IV, C-II, D-I
4. A-III, B-II, C-I, D-IV

A1 : 1

A2 : 2

4.0

0.00

		A3 : 3		
		A4 : 4		
Objective Question				
5	998005	Which of the followings does not belong to probability sampling: I. Cluster Sampling II. Quota Sampling III. Purposive sampling IV. Systematic Sampling 1. I & IV only 2. II & III only. 3. I only 4. IV only A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
6	998006	SPSS stands for 1. Statistical package for system sciences 2. Statistical package for social sciences 3. Statistical package for social system 4. Science package for social sciences A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
7	998007	Conversion of 0.625 into its equivalent binary fraction 1. 0.101 2. 0.0101 3. 0.00101 4. 1.101 A1 : 1	4.0	0.00

		A2 : 2		
		A3 : 3		
		A4 : 4		
Objective Question				
8	998008	A sample consists of three sub-samples with sizes 45,40 and 65 having their means 2.0, 2.5, 3.0 respectively. Mean of the combined sample is 1. 3.57 2. 2.57 3. 1.57 4. 4.57 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
9	998009	Which of the following is an example of primary source of information? 1. A database curated from literature 2. Direct outcome of an experiment 3. Results of a novel analysis 4. Highly cited research paper A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
10	998010	Plagiarism refers to 1. Publishing results by faking data 2. Allowing other to published our data 3. Publishing work from sources without citation or permission 4. Drawing conclusions without supporting data A1 : 1	4.0	0.00

		A2 : 2		
		A3 : 3		
		A4 : 4		
Objective Question				
11	998011	Which of the following is an example of data fudging? 1. Rounding off numerical values of data 2. Creating data manually without performing experiment 3. Using someone else's data without acknowledgement or permission 4. Wrong Data entry A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
12	998012	Clustering analysis in a microarray experiment refers to? 1. Cluster of cDNAs printed on the array 2. Genes that are likely to work in concert in the given tissue/cell 3. Genes clustered together in the genome 4. Clusters of probes used to monitor the gene expression A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
13	998013	Z Score Statistic is computed considering 1. Mean 2. Mean and Mode 3. Mean and standard deviation 4. Mean and Median A1 : 1 A2 : 2	4.0	0.00

		A3 : 3		
		A4 : 4		
Objective Question				
14	998014	In an autoclave, equipment and reagents are sterilized by subjecting them to? 1. Saturated steam under at least 15 psi pressure, 121°C temperature for 15-20 min 2. Saturated steam under at least 35 psi pressure, 121°C temperature for 1.5 h 3. Saturated steam under at least 15 psi pressure, 100°C temperature for 15-20 min 4. Saturated steam under at least 10 psi pressure, 100°C temperature for 1.5 h A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
15	998015	GUI refers to? 1. Graphical Unit Intensity of Pixels 2. Command like interfaces 3. Graphical user interface 4. Unix-like operating system A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
16	998016	Find the odd pair out considering their functional relationship: 1. Cancer and healthy cells 2. Gene and genome 3. Enzyme and catalysts 4. Glucose and Fructose A1 : 1 A2 : 2	4.0	0.00

		A3 : 3		
		A4 : 4		
Objective Question				
17	998017	In a U-shaped pipe, partially filled with a liquid, the right side is narrow and the left is broad. Under normal conditions of free movement of liquid and with enough liquid on the two sides, the levels will be as follows? 1. Right side will always be higher than the left side 2. Left side will always be higher than the right side 3. The levels on the right and left will be equal 4. It depends on the density of liquid A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
18	998018	Mean of two groups was calculated as M1 and M2 independently. If the two groups are merged, which of the following is true? 1. The new mean is the mean of M1 and M2 2. The new mean value will always be between or equal to M1 and M2 3. The new mean can be computed from M1 and M2 4. The new mean will be closer to the smaller of M1 and M2 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
19	998019	Type - I error is called as 1. P (rejecting the null hypothesis when it is true) 2. P (rejecting the null hypothesis when it is false) 3. P (rejecting the null hypothesis when it is equal) 4. Power of the study A1 : 1 A2 : 2	4.0	0.00

		A3 : 3		
		A4 : 4		
Objective Question				
20	998020	Which method used for checking the data normality in statistics 1. T - Test 2. ANOVA 3. Q-Q Plot 4. Chi-squared Test A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
21	998021	Which of the following is a negative number? 1. $\log_{10}(2)$ 2. $1e-10$ 3. $10!$ 4. $\log_2(10)$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
22	998022	In experimental research "Controls" are used for 1. Publication 2. Data scaling 3. Data reference 4. Image construction A1 : 1 A2 : 2 A3 : 3	4.0	0.00

		A4 : 4		
Objective Question				
23	998023	One of the following is not a typical of a qualitative study 1. FGD 2. Case study 3. Depth interview 4. Correlation A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
24	998024	What is the name of the distribution in which the mean and the variance are equal 1. Normal distribution 2. Exponential distribution 3. Poisson distribution 4. Binomial distribution A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
25	998025	Four people finish a task in 4 hours, how much time will 2 people take in finishing it, assuming equal efficiency and no overhead or mutual interaction? 1. 2 hours 2. 32 hours 3. 16 hours 4. 8 hours A1 : 1 A2 : 2 A3 : 3	4.0	0.00

		A4 : 4		
Objective Question				
26	998026	The meaning of false positive in data analysis is: 1. Concluding there is a difference between the groups being studied when, in fact, there is no difference. 2. Concluding there is no difference between the groups being studied when, in fact, there is a difference. 3. There is no error in the data structure. 4. There is no relationship among the groups of the data. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
27	998027	Which of the following is used by researchers to attempt to explain, predict, and explore the phenomenon of interest? 1. P-values 2. Correlation 3. Hypotheses 4. Interpolation A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
28	998028	The most effective method of assigning participants to groups within a research study is through a procedure called as 1. Selective assignment 2. Group assignment 3. Intervention 4. Random assignment A1 : 1 A2 : 2 A3 : 3	4.0	0.00

		A4 : 4		
Objective Question				
29	998029	Which of the following is an ethical practice in research publication? 1. Stretching an image to improve readability 2. Hiding details of experiments so that others cannot copy it 3. Inviting friends to be co-authors even if they were not part of the study 4. Giving proper citations at appropriate places in the manuscript A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
30	998030	A predatory journal refers to 1. A journal that publishes papers with publication charges 2. A journal that doesn't have a rigorous review process 3. A journal that publishes articles about predatory wild animals 4. A journal that reports predatory events A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
31	998031	In Linux, which command can read the content of another file in vi editor? 1. erd 2. ex 3. r 4. read A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00

Objective Question

32

998032

Match List I with List II

4.0

0.00

LIST I		LIST II	
A.	Conference	I.	Academic meeting/ specialist delivers address/ Well-educated but not specialized
B.	Symposium	II.	Usually a formal meeting / Specialist delivers short address / Participants form audience and also make presentations
C.	Workshop	III.	People conferring on a topic / Usually discussion based / People from different backgrounds
D.	Colloquium	IV.	Smaller and more intense / Practice new skill / students or researchers keen on learning new skill

Choose the correct answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (II), (B) - (I), (C) - (III), (D) - (IV)
3. (A) - (I), (B) - (II), (C) - (IV), (D) - (III)
4. (A) - (III), (B) - (II), (C) - (IV), (D) - (I)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

33	998033	The acronym DOI points to - Data of Interest - Data of identifiable objects - Digital Object Identifier - Digital Object Inclusion A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

34	998034		4.0	0.00
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		For working on animal models, prior approval and clearance is generally provided by 1. Purchase committee 2. Disposal committee 3. Ethical approval committee 4. Academic Committee A1 : 1 A2 : 2 A3 : 3 A4 : 4		
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Objective Question

35	998035	The molecular weight of a protein is 30 kDa. The minimal length of mRNA encoding this polypeptide will be close to? 1. 900 2. 800 3. 1000 4. 300 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

36	998036	Considering an equal probability of occurrence of all the bases, how many possible DNA strings can be generated for a DNA probe having a length of 5 bases? 1. 20 2. 2000 3. 1024 4. 3125 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

37	998037		4.0	0.00
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		If 5 ml of 20% ethanol is mixed with 25 ml of 80% ethanol, the resulting solution will approximately be: 1. 50% ethanol 2. 70% ethanol 3. 100% ethanol 4. 80% ethanol A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
38	998038	The best measure of dispersion is _____ 1. Mean 2. Mode 3. Mean deviation 4. Standard deviation A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
39	998039	Length and breadth of a rectangle have been measured with a permissible error of 1 cm each. What is the permissible error in the estimate for its perimeter? 1. 1 cm 2. 2 cm 3. 3 cm 4. 4 cm A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
40	998040		4.0	0.00

		Which of the following is the computing layer with which a programmer interacts? 1. Application programing interface (API) 2. Operating System 3. Assembly language 4. Process controller A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
41	998041	Open source for a computer program means? 1. Software binaries available freely for sharing 2. Software and code in the public domain 3. Software available for purchase in the open market 4. Program available with bugs A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
42	998042	Observations of a parameter Y have fitted well with the observations of another parameter X on a given data set on a scatterplot. We can conclude that: 1. X causes Y 2. Y causes X 3. Both X and Y cause each other 4. Both X and Y shows the relationship to each other A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
43	998043		4.0	0.00

		Which of the following factors must be taken into account in quantitative research? A. Measurement B. Causality C. Replication D. Exclusion of Statistical analysis E. Less importance to standardisation Choose the most appropriate answer from the options given below: 1. (A), (B) and (C) only 2. (B), (C) and (D) only 3. (C), (D) and (E) only 4. (A), (C) and (D) only A1 : 1 A2 : 2 A3 : 3 A4 : 4		
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Objective Question

44	998044	For empirical studies, the poster presentation can have: A. Abstract B. Method C. Data D. Results E. Conclusion Choose the most appropriate answer from the options given below: 1. (B), (D) and (E) only 2. (C), (D) and (E) only 3. (A), (D) and (E) only 4. (A), (B), (C), (D) and (E) only A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

45	998045	According to post - positivists, it is impossible to achieve 1. Objectivity 2. Abstraction 3. Predictability 4. Qualitative assertions	4.0	0.00
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A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

46

998046

Match List I with List II

4.0

0.00

LIST I Type of Validity		LIST II Reflection	
A.	Face Validity	I.	Indicates adequacy of instrument
B.	Concurrent Validity	II.	Indicates the extent to which the measurement is used
C.	Construct	III.	Compares a new test to an already established test
D.	Predictive	IV.	The extent to which a score on a scale forecasts scores on same criterion measure

Choose the correct answer from the options given below:

1. A-I, B-III, C-II, D-IV
2. A-III, B-I, C-II, D-IV
3. A-I, B-III, C-IV, D-II
4. A-I, B-II, C-III, D-IV

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

47

998047

Creating a purpose statements, research questions and hypotheses that are narrow and measurable would mark the characteristic features of which research type?

4.0

0.00

1. Narrative research
2. Ethnographic research
3. Grounded theory research
4. Experimental research

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

48	998048	In which of the following research methods, process of hypothesis testing optimally safeguards the role of extraneous variables? 1. Expost Facto method 2. Experimental method 3. Historical method 4. Descriptive survey method A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

49	998049	A testing type called _____ is a systematic, thorough, independent evaluation of a product or service. 1. alpha testing 2. beta testing 3. primary testing 4. case testing A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

50	998050		4.0	0.00
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Match List I with List II

LIST I		LIST II	
A.	efficiency of a measurement instrument	I.	degree to which the instrument actually measures what it is supposed to measure.
B.	validity of a measurement instrument	II.	ratio between the benefits and the costs of using the instrument.
C.	precision of a measurement instrument	III.	degree to which use of the instrument does not require special knowledge or the use of judgment.
D.	objectivity of a measurement instrument	IV.	capacity of that instrument to resolve small differences in the parameter or quality being measured.

Choose the correct answer from the options given below:

1. A-II, B-I, C-IV, D-III
2. A-I, B-II, C-IV, D-III
3. A-I, B-II, C-III, D-IV
4. A-II, B-I, C-III, D-IV

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

51	998051	The Navier-Stokes equation is : 1. $\rho(dV / dt) = \rho g + \nabla p - \mu \nabla^2 V$ 2. $\rho(dV / dt) = \rho g - \nabla p + \mu \nabla^2 V$ 3. $\rho(dV / dt) = \rho g + \nabla p^2 - \mu \nabla^2 V$ 4. $\rho(dV / dt) = \rho^2 g^2 + \nabla p^2 - \mu \nabla^2 V$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

52	998052		4.0	0.00
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Incompressible continuity EQUATION is :

$$1. \rho(dV / dt) = \rho^2 g^2 + \nabla p^2 - \mu \nabla^2 V$$

$$2. \rho^2 g^2 + \nabla p^2 - \mu \nabla^2 V = 0$$

$$3. \nabla \cdot \nabla = 0$$

$$4. \rho^2 g^2 + \nabla p^2 = 0$$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

53	998053	The solution of $x^3 \left(\frac{d^3 y}{dx^3} \right) + 3x^2 \left(\frac{d^2 y}{dx^2} \right) + x \left(\frac{dy}{dx} \right) + y = \log x + x$ is: $1. y = c_1 x^{-1} + x^{\frac{1}{2}} \left[c_2 \cos \left\{ \left(\frac{\sqrt{3}}{2} \right) \log x \right\} - c_3 \tan \left\{ \left(\frac{\sqrt{3}}{2} \right) \log x \right\} \right] + \frac{x}{2} + \log x$ $2. y = c_1 x^{-1} - x^{\frac{1}{2}} \left[c_2 \cos \left\{ \left(\frac{\sqrt{3}}{2} \right) \log x \right\} - c_3 \tan \left\{ \left(\frac{\sqrt{3}}{2} \right) \log x \right\} \right] + \frac{x}{5} + x$ $3. y = c_1 x^{-1} + x^{\frac{1}{2}} \left[c_2 \cos \left\{ \left(\frac{\sqrt{3}}{2} \right) \log x \right\} + c_3 \sin \left\{ \left(\frac{\sqrt{3}}{2} \right) \log x \right\} \right] + \frac{x}{2} + \log x$ $4. y = c_1 \sin x - x^{\frac{1}{2}} \left[c_2 \cot x \left\{ \left(\frac{\sqrt{3}}{2} \right) \log x \right\} - c_3 \tan \left\{ \left(\frac{\sqrt{3}}{2} \right) \log x \right\} \right] + \frac{x}{5} + x$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

54	998054	The solution of $\left(\frac{d^2 y}{dx^2} \right) + 4y = 8 \cos 2x$, given that $y=0$ and $\frac{dy}{dx} = 0$, when $x=0$. $1. y=2x \tan 2x$ $2. y=2x \sin 2x$ $3. y=2x \sin x$ $4. y=2x \cot x$ A1 : 1	4.0	0.00
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		A2 : 2		
		A3 : 3		
		A4 : 4		
Objective Question				
55	998055	The first order derivative of $\frac{d}{dx} \{x^n J_n(x)\}$ is : 1. $x^2 J_{n-1}(x)$ 2. $x^n J_{n^2}(x)$ 3. $x^5 J_{3/2}(x)$ 4. $x^n J_{n-1}(x)$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
56	998056	The Strum-Liouville equation is given by : 1. $[r(x)y']' + [q(x) + \lambda p(x)]y = 0$, where p, q, r and r' continuous in closed interval a and b, λ is a parameter independence of x and $p(x) > 0$. 2. $[r(x)y'] - [q(x) + \lambda p(x)]y = 0$, where p, q, r and r' continuous in closed interval a and b, is a parameter independence of x and $p(x) > 0$. 3. $[r(x)y']' + [q(x) - \lambda p(x)]y = 1$, where p, q, r and r' continuous in closed interval a and b, is a parameter independence of x and $p(x) > 0$. 4. $[r(x)y']'' + [q(x) + \lambda p(x)]y' = 0$, where p, q, r and r' continuous in closed interval a and b, is a parameter independence of x and $p(x) > 0$. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
57	998057		4.0	0.00

The general solution of the partial differential equation $px(x+y) - qy(x+y) + (x-y)(2x+2y+z) = 0$ is :

1. $\phi[x^2y^2, (x-y)(x+y+z)] = 0, \phi$ being an arbitrary function.
2. $\phi[xy, (x-y)(x-y^2+z)] = 0, \phi$ being an arbitrary function.
3. $\phi[xy, (x+y)(x+y+z)] = 0, \phi$ being an arbitrary function.
4. $\phi[x-y, (x+y)(x^2-y+z)] = 0, \phi$ being an arbitrary function.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

58	998058	On what curves the function $\int_0^1 (y'^2 + 12xy)dx, y(0), y(1) = 1$ can be extremized ? 1. $y = x^2$ 2. $y = x^3$ 3. $y = x^4$ 4. $y = x^5$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

59	998059		4.0	0.00
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The union of two subspaces of a vector space V over the same field F is:

- A. need not be a subspace of V
- B. always be a subspace of V
- C. union is not defined
- D. a subspace of $V(F)$ if and only if one of them contained in the other.

Choose the most appropriate answer from the options given below:

- 1. A and D Only
- 2. D Only
- 3. B Only
- 4. B and C Only

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

60	998060	Let the set of all real-valued continuous functions $y = f(x)$ satisfying the differential equation $\frac{d^3y}{dx^3} + 6\frac{d^2y}{dx^2} + 11\frac{dy}{dx} + 6y = 0$ is a and its basis 1. vector space over $[-2,2]$; $\{e^{-x^2}, e^{-2x}, e^{-3x}\}$ 2. vector space over $[-1,1]$; $\{e^{-x^2}, e^{-2x^2}, e^{-3x}\}$ 3. vector space over $\mathbb{R}$; $\{e^{-x}, e^{-2x}, e^{-3x}\}$ 4. vector space over $[-1,1]$; $\{e^{-x^2}, e^{-2x^2}, e^{-3x^3}\}$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

61	998061	Let $T: \mathbb{R}^2 \rightarrow \mathbb{R}^3$ be the linear transformation defined by $T(x, y) = (x + y, x - y, y)$. Then the Ker T and Range T are: 1. $\text{Ker}T = \{(-1, -1, -1)\}$, $\text{Range}T = \{(-1, -1, 0), (1, -1, 1)\}$ 2. $\text{Ker}T = \{(-2, -2, -2)\}$, $\text{Range}T = \{(1, 1, 0), (-1, 1, -1)\}$ 3. $\text{Ker}T = \{(1, 1, 1)\}$, $\text{Range}T = \{(2, -2, 0), (-1, -1, 1)\}$ 4. $\text{Ker}T = \{(0, 0, 0)\}$, $\text{Range}T = \{(1, 1, 0), (1, -1, 1)\}$ A1 : 1	4.0	0.00
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A2 : 2

A3 : 3

A4 : 4

Objective Question

62	998062	$T(e_1) = 5e_1 - 6e_2 - 6e_3$ Let $T: R^3 \rightarrow R^3$ be a linear operator, where $T(e_2) = -e_1 + 4e_2 + 2e_3$. $T(e_3) = 3e_1 - 6e_2 - 4e_3$ The the characteristic values of T are: 1. -1,-2,-2 2. 1,2,2 3. 2,1,1 4. 2,2,2 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

63	998063	Let $R_3[x] = \{a_0 + a_1x + a_2x^2 : a_0, a_1, a_2 \in R\}$. Define $T: R_3[x] \rightarrow R_3[x]$ by $T(f(x)) = \frac{d}{dx}f(x)$, for all $f(x) \in R_3[x]$. Let T is a linear transformation. Then the matrix representation of T with reference to basis sets $\{1, x, x^2\}$ and $\{1, 1+x, 1+x+x^2\}$ is : 1. $\begin{pmatrix} -1 & -1 & -2 \\ -2 & -2 & 2 \\ 0 & 0 & 2 \end{pmatrix}$ 2. $\begin{pmatrix} -1 & -1 & -1 \\ -1 & -1 & 1 \\ 1 & 0 & 2 \end{pmatrix}$ 3. $\begin{pmatrix} -1 & -1 & -2 \\ 0 & 0 & 2 \\ 0 & 0 & 0 \end{pmatrix}$ 4. $\begin{pmatrix} 0 & 1 & -2 \\ 0 & 0 & 2 \\ 0 & 0 & 0 \end{pmatrix}$ A1 : 1 A2 : 2 A3 : 3	4.0	0.00
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		A4 : 4		
Objective Question				
64	998064	Select the wrong statement: A. Operational Research is the science of use. B. Operational Research is the quantitative common sense. C. Operational Research is a scientific approach to problems solving for executive management. D. Operational Research is the art of giving good answers to the problems which otherwise best could be given. Choose the most appropriate answer from the options given below: 1. A and B Only 2. D Only 3. A and C Only 4. A Only A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
65	998065	Which of the following is not associated with LPP? 1. Additivity 2. Divisibility 3. Uncertainty 4. Proportionality A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
66	998066	A degenerate solution is one that: 1. Gives an optimal solution to the LPP. 2. Gives zero value to one or more of the basic variables. 3. Yields more than one way to achieve the objective. 4. Make use of all available resources. A1 : 1	4.0	0.00

A2 : 2

A3 : 3

A4 : 4

Objective Question

67	998067	A necessary and sufficient condition for a basic feasible solution of a LPP to be an optimum (minimum) is: 1. $z_j - c_j \leq 0$ 2. $z_j - c_j \geq 0$ 3. $z_j - c_j = 0$ 4. $z_j - c_j > 0$ or $z_j - c_j < 0$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

68	998068		4.0	0.00
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Match List I with List II

List I Primal Problem		List II Dual Problem	
A.	Maximize $Z = CX$	I.	Minimize (or Maximize) $z^* = b^T w$
	subject to the constraints: $AX \leq b$ and $x \geq 0$		subject to the constraints: $A^T w = c^T$ and w is unrestricted.
B.	Maximize $z = cx$	II.	Minimize $z^* = b^T w$
	subject to the constraints: $AX = b$ and $x \geq 0$		subject to the constraints: $A^T w \geq c^T$ and w is unrestricted.
C.	Minimize $Z = CX$	III.	Maximize $z^* = b^T w$
	subject to the constraints: $AX = b$ and $x \geq 0$		subject to the constraints: $A^T w \leq c^T$ and w is unrestricted.
D.	Maximize (or Minimize) $Z = CX$	IV.	Minimize $z^* = b^T w$
	subject to the constraints: $AX = b$ and x is unrestricted.		subject to the constraints: $A^T w \geq c^T$ and $w \geq 0$.

Choose the correct answer from the options given below:

1. A- IV ,B- II ,C- III ,D- I
2. A-I ,B-II ,C-III,D-IV
3. A- III,B- II,C- I ,D-IV
4. A-IV ,B-III ,C- II,D-I

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

69 998069

Transportation problem may have degenerate solution, if the number of _____.

1. unoccupied (basic) cells is equal to $m + n - 1$
2. unoccupied cells is less than $m + n - 1$
3. occupied cells is at least $m + n - 1$
4. occupied cells is less than $m + n - 1$

A1 : 1

A2 : 2

A3 : 3

4.0

0.00

		A4 : 4		
Objective Question				
70	998070	In assignment problem involving 5 workers and 5 jobs, total number of assignments possible are: 1. 10! 2. 10 3. 5! 4. 5 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
71	998071	In Petri net theory, the difference between the positive incidence matrix and negative incidence matrix is called: 1. adjacency matrix 2. distance matrix 3. incidence matrix 4. weighted matrix A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
72	998072	Let C be the minimal crisp Boolean Petri net with cardinality of places 6. Then total number of distinct marking vectors generated by the first step firings of every transition in its reachability graph: 1. 2^3 2. 2^{36} 3. 2^6 4. 6 A1 : 1 A2 : 2 A3 : 3	4.0	0.00

		A4 : 4		
Objective Question				
73	998073	Every tree has a center consisting of : 1. exactly 2^n points 2. either one point or two adjacent point 3. either one point or two non-adjacent point 4. n^n A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
74	998074	If $G_1 = (p_1, q_1)$ and $G_2 = (p_2, q_2)$ are two graphs. Then, what is the order and size of the binary operation graph composition $G_1[G_2]$? 1. order = $p_1 + p_2$, size = $p_1 q_2 + p_2 q_1$ 2. order = $p_1 p_2$, size = $p_1 q_2 + p_2^2 q_1$ 3. order = $p_1 + p_2$, side = $q_2 + q_1$ 4. order = $p_1 + p_2$, size = $q_2 + q_1 + p_1 p_2$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
75	998075	A random variable X assumes any positive integral value n with a probability proportional to $\frac{1}{3^n}$. The expected value of X is: 1. 2.5 2. 1 3. 2 4. 1.5 A1 : 1 A2 : 2	4.0	0.00

		A3 : 3		
		A4 : 4		
Objective Question				
76	998076	Which of the following technique is used to replace run-time computations by compile time computations? 1. Constant folding 2. Code hoisting 3. Pee phole optimization 4. Invariant computation A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
77	998077	Following are the features present in IPv4 but not in IPv6: A. Fragmentation B. Header checksum C. Hop limit D. Options 1. (A), (B) and (C) only 2. (A), (B) and (D) only 3. (A), (B), (C) and (D) only 4. (B), (C) and (D) only A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
78	998078	Which of the following is a procedure for acquiring the necessary locks for a transaction where all necessary locks are acquired before any are released? 1. Record controller 2. Exclusive lock 3. Authorization rule 4. Two phase lock	4.0	0.00

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

79

998079

Match the following in List I with List II

4.0

0.00

LIST I		LIST II	
A.	Similar trees	I.	two trees have same structure and node content.
B.	B-trees	II.	two trees have same structure and but different node content.
C.	Quad-trees	III.	a generalization of a self-balancing binary search tree in which each node can hold more than one search key and have more than two children.
D.	Equivalent trees	IV.	tree in which each leaf-node is labelled by a value and each non-leaf node has exactly four children.

Choose the correct answer from the options given below:

1. A-I , B-II, C-III , D-IV
2. A-I , B-III, C-II , D-IV
3. A-II , B-III, C-IV , D-I
4. A-III , B-II, C-IV , D-I

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

80

998080

Which tree has the following feature i.e. "A binary tree where all the levels of the tree are filled completely except the lowest level nodes which are filled from as left as possible".

4.0

0.00

1. Threaded Tree
2. Complete Binary Tree
3. M-way Search Tree
4. Full Binary Tree

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

81

998081

Match the following in List I with List II

4.0

0.00

LIST I Options		LIST II Descriptions	
A.	Security	I.	Makes each router append its IP address.
B.	Strict source routing	II.	Gives a list of routers not to be missed.
C.	Loose source routing	III.	Specifies how secret the datagram is.
D.	Record route	IV.	Gives the complete path to be followed.

Choose the correct answer from the options given below:

1. A- IV, B- III , C- II, D-I

2. A- II, B- IV , C- III, D-I

3. A- IV, B- III , C- I, D-II

4. A- III, B- IV , C- II, D-I

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

82	998082	Packet lifetime can be restricted to a known maximum using one (or more) of the following techniques: A. Restricted Network Design B. Connection Release C. Putting a hop counter in each packet D. Slow Start E. Timestamping each packet Choose the most appropriate answer from the options given below: 1. (A), (C) and (E) only 2. (A), (B) and (C) only 3. (B), (D) and (E) only 4. (B), (C) and (E) only A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

83	998083		4.0	0.00
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Which of the following symbol table implementation has the minimum access time?

1. Self-organizing list
2. Linear
3. Search tree
4. Hash table

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

84 998084

Match the following in List I with List II

4.0

0.00

LIST I		LIST II	
A.	Top-down parsing	I.	Replace run-time computations by compile time computations.
B.	Constant folding	II.	Simulate Synthesized attribute.
C.	LR grammar	III.	Recursive descent parsing.
D.	Bottom-up parsing	IV.	Shift reduce parsing.

Choose the correct answer from the options given below:

1. A-III,B- I,C-II ,D-IV
2. A-II,B- III,C-I ,D-IV
3. A-I,B- III,C-II ,D-IV
4. A-I,B- II,C-III ,D-IV

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

85 998085

4.0

0.00

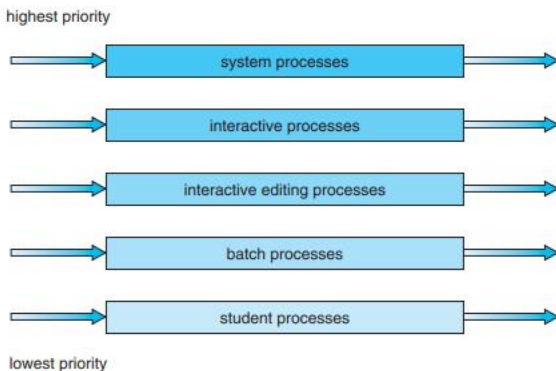
		Which of the following can be used as an intermediate code form? A. Quadruples B. Syntax trees C. Three address codes D. Post fix notation Choose the most appropriate answer from the options given below: 1. (B), (C), and (D) only 2. (A), (C), and (D) only 3. (A), (B), and (D) only 4. (A), (B), (C), and (D) A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
86	998086	Assume that the SLR parser for a grammar G has $n1$ states and the LALR parser for G has $n2$ states. 1. $n1$ is necessarily less than $n2$ 2. $n1$ is necessarily equal to $n2$ 3. $n1$ is necessarily greater than $n2$ by more than one states 4. $n1$ is necessarily greater than $n2$ by one state A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
Objective Question				
87	998087	When β (in the $LR(1)$ item $A \rightarrow \beta . a, a$) is not empty, the look-head ? 1. Will be affecting 2. Does not have any affect 3. Shift will take place 4. Reduction will take place A1 : 1 A2 : 2 A3 : 3	4.0	0.00

A4 : 4

Objective Question

88	998088	Following is/are the advantage of Compiler-Based Enforcement: A. Protection needs are simply declared, rather than programmed as a sequence of calls on procedures of an operating system. B. Protection requirements can be stated independently of the facilities provided by a particular operating system. C. The means for enforcement need not be provided by the designer of a subsystem. D. A declarative notation is natural because access privileges are closely related to the linguistic concept of data type. Choose the most appropriate answer from the options given below: 1. (A), (B), (C) and (D) 2. (A), (B) and (D) only 3. (A), (C) and (D) only 4. (B), (C) and (D) only A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

89	998089	The diagram represents:-  highest priority lowest priority 1. Thread Scheduling 2. Multilevel Queue Scheduling 3. Round-Robin Scheduling 4. Priority Scheduling A1 : 1 A2 : 2	4.0	0.00
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		A3 : 3		
		A4 : 4		

Objective Question

90	998090	A graph is said to be _____ if vertices can be split into two disjoint subsets V_1 and V_2 such there are no edges between two vertices of V_1 or two vertices of V_2. 1. Partite 2. Bipartite 3. Rooted 4. Bisects A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

91	998091	In a Circular Queue, the value of r will be _____? 1. $r = r + 1$ 2. $r = (r + 1) \% [QUEUE_SIZE - 1]$ 3. $r = (r + 1) \% QUEUE_SIZE$ 4. $r = (r - 1) \% QUEUE_SIZE$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

92	998092	What is the size of Network bits and Host bits of Class A of IP address? 1. Network bits 7, Host bits 23 2. Network bits 8, Host bits 24 3. Network bits 7, Host bits 24 4. Network bits 8, Host bits 23 A1 : 1 A2 : 2 A3 : 3	4.0	0.00
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A4 : 4

Objective Question

93	998093	Which of the following is useful in implementing quick sort? A. Recursion B. Breadth first search C. Depth first search D. Backtracking Choose the most appropriate answer from the options given below: 1. (A) and (C) only 2. (B) and (C) only 3. (A) and (D) only 4. (B) and (D) only A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

94	998094	A <i>B-tree</i> of order m is a tree which satisfies the following conditions: A. Every node has at most m children. B. Every non-leaf node (except the root node) has at least $m/2$ children. C. The root node, if it is not a leaf node, has at least two children. D. A non-leaf node with c children contains $c-1$ search keys which act as separation values to divide its sub-trees. E. All leaf nodes appear in the same level, and carry information. Choose the most appropriate answer from the options given below: 1. (A), (B), (C), (D) and (E) 2. (B), (C), (D) and (E) only 3. (A), (B), (C) and (D) only 4. (A), (C), (D) and (E) only A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

95	998095		4.0	0.00
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		The _____ scheme uses a page table containing pointers to all pages; the page table itself and all updated pages are copied to a new location. 1. Shadow Copy 2. Shadow Paging 3. Update Log Records 4. Deferred-Modification A1 : 1 A2 : 2 A3 : 3 A4 : 4		
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Objective Question

96	998096	When transaction T_i requests a data item currently held by T_j, T_i is allowed to wait only if it has a timestamp larger than that of T_j (that is, T_i is younger than T_j). Otherwise, T_j is rolled back (T_j is wounded by T_i). 1. Wait-Die 2. Wound-Wait 3. Wait-Wound 4. Wait A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

97	998097	A directed graph containing control flow information for the set of fundamental blocks is known as _____ 1. Hamiltonian graph 2. Control graph 3. Flow graph 4. DAG A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

98	998098	A process of determining if a string of tokens can be generated by a grammar is called as _____. 1. Analysing 2. Parsing 3. Translating 4. Recognizing A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

99	998099	What is the purpose of the PSH flag in the TCP header? 1. Typically used to indicate end of message 2. Typically used to indicate beginning of message 3. Typically used to push the message 4. Typically used to indicate stop the message A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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Objective Question

100	998100	Which of the following is not a variable name in C ? 1. volatile 2. true 3. friend 4. export A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	0.00
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