IES/ISS EXAM,2017

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T.B.C. : STT-S-KJTY

Test Booklet Series

A

Serial

1009313

TEST BOOKLET

STATISTICS

Paper I

Time Allowed : Two Hours *Maximum Marks : 200*

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET ***DOES NOT*** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. **Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Test Booklet Series Code A, B, C or D carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/discrepancy will render the Answer Sheet liable for rejection.**
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. ***DO NOT*** write ***anything else*** on the Test Booklet.
4. This Test Booklet contains **80** items (questions). Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose ***ONLY ONE*** response for each item.
5. You have to mark all your responses ***ONLY*** on the separate Answer Sheet provided. See directions in the Answer Sheet.
6. All items carry equal marks.
7. Before you proceed to mark in the Answer Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per instructions sent to you with your Admission Certificate.
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator ***only the Answer Sheet***. You are permitted to take away with you the Test Booklet.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. **Penalty for wrong answers :**

    THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.

    (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as penalty.

    (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.

    (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

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1. Leela has appeared in an examination which follows multiple choice questions, each having five possible answers. The probability that she knows an answer is 0·75. If she does not know an answer, she will guess, with the conditional probability $\frac{1}{5}$ of being correct. The conditional probability that Leela knows the answer, given that she gives the correct answer, is

(a) 0·25

(b) 0·80

(c) 0·90

(d) 0·94

2. Consider a sequence of Bernoulli trials with probability of success $\frac{1}{3}$ for each trial. Let X denote the length of run of either successes or failures starting with the first trial. Then the value of E(X) is

(a) 2

(b) 2·5

(c) 3

(d) 3·5

3. The probability that a death occurs due to heart failure is 0·45 and the probability that a death occurs due to cancer is 0·22. Consider the following statements :

1. The probability that the death is either due to heart failure or due to cancer is 0·67.

2. The probability that the death is due to some other cause (but not these two) is 0·55.

Which of the statements is/are correct ?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

4. Let X, a continuous random variable, follow U(0, 1) distribution. Then, we assert that

1. $P(X \geq 0{\cdot}27) = 0{\cdot}73$

2. $P(0{\cdot}27 < X < 1{\cdot}27) = 0{\cdot}73$

Which of the above assertions is/are correct ?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

5. Let X be the number of phone calls received at a call centre during business hours and Y be the number of calls received outside business hours, on a particular day. Assume that X and Y are independent, and follow the Poisson distribution with means λ_1 and λ_2 respectively, where $\lambda_1 \neq \lambda_2$. Then the conditional distribution of X, given the total number of calls received that day (i.e., X + Y), is

(a) Binomial

(b) Poisson

(c) Discrete Uniform

(d) Negative Binomial

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6. A and B are events such that $P(A) = \frac{1}{4}$, $P(B) = \frac{1}{3}$ and $P(A \cap B) = \frac{1}{12}$. Then consider the following :

1. $P(A \cap \overline{B}) = \frac{1}{4}$
2. $P(\overline{A} \cap \overline{B}) = \frac{1}{2}$
3. $P(B \mid \overline{A}) = \frac{1}{3}$

Which of the above statements are correct ?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

7. Consider a game where the player tosses a six-sided die. If the face that comes up is 6, the player wins ₹ 36, otherwise he loses ₹ k^2, where k is the face that comes up (k = 1, 2, 3, 4, 5). What amount in rupees can the player expect to win at this game if the die is fair ?

(a) $\frac{19}{6}$
(b) $-\frac{19}{6}$
(c) $\frac{3}{2}$
(d) $-\frac{3}{2}$

8. A man buys 10 bulbs, each with independent exponentially distributed lifetimes with the same mean, with the intention of using one bulb at a time and replacing it with another as soon as it fails. The distribution of the total duration of the 10 bulbs taken together is

(a) Exponential
(b) Normal
(c) Beta
(d) Gamma

9. In a continuous distribution, the probability density function is given by

$$f(x) = \begin{cases} y_0 x(2-x); & 0 \le x \le 2 \\ 0 & \text{otherwise} \end{cases}$$

where y_0 is a constant.

Its first moment about the origin is given by

(a) 1
(b) 2
(c) 3
(d) 4

10. Let X and Y be independent random variables, each having the uniform distribution on [– 1, 2]. Then Var(X + Y) is equal to

(a) $\frac{3}{2}$
(b) $\frac{5}{2}$
(c) 4
(d) 6

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11. In an examination, marks obtained by the students in Physics, Mathematics and Statistics denoted by X, Y and Z are normally distributed with mean 50, 52 and 48 respectively and with standard deviation 15, 12 and 16 respectively. The distribution of (X + Y + Z) is

(a) N(350, 53)

(b) N(55, 350)

(c) N(150, 625)

(d) N(625, 150)

12. A drunkard takes a forward step with probability p and a backward step with probability q. After taking 11 steps, the probability that he is one step away from the starting point is

(a) $p^6 + q^6$

(b) $2(p^6 + q^5)$

(c) $462\, p^6 q^5$

(d) $462\,(pq)^5$

13. Consider n independent Poisson variables $X_1, X_2, X_3, \ldots, X_n$ with parameters $\lambda_1, \lambda_2, \lambda_3, \ldots, \lambda_n$ respectively and $S_n = X_1 + X_2 + X_3 + \ldots + X_n$.

Statement I :

S_n has a Poisson distribution with parameter $\sum_{j=1}^{n} \lambda_j$.

Statement II :

The mgf of S_n is $e^{\sum_{i=1}^{n} \lambda_i (e^t - 1)}$.

Which one of the following is correct in respect of the above statements ?

(a) Both Statement I and Statement II are true and Statement II is the correct explanation of Statement I

(b) Both Statement I and Statement II are true but Statement II is ***not*** the correct explanation of Statement I

(c) Statement I is true but Statement II is false

(d) Statement I is false but Statement II is true

14. If the distribution function of a random variable X is given by $F(x) = \sin x$, where $0 < x < \frac{\pi}{2}$, then the probability density function at $x = \frac{\pi}{6}$ has the value

(a) $\frac{1}{2}$

(b) $\frac{\sqrt{3}}{2}$

(c) $\frac{1}{\sqrt{2}}$

(d) $\frac{1}{3}$

15. If X and Y are independent identically distributed $N(0, \sigma^2)$ random variables, then which of the following are correct ?

1. $\frac{X^2 + Y^2}{\sigma^2}$ follows a Chi-square distribution with 2 degrees of freedom.

2. $\frac{X}{Y}$ follows a standard Cauchy distribution.

3. $\frac{(X + Y)^2}{\sigma^2}$ follows a Chi-square distribution with 2 degrees of freedom.

4. (X – Y) and (X + Y) are independent.

Select the correct answer using the code given below :

(a) 1 and 2 only

(b) 2, 3 and 4 only

(c) 1, 2 and 4 only

(d) 1 and 4 only

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16. Player A writes a '+' sign on a magic slate. The slate is then passed on to players B, C and D in succession, each of whom may rub the slate and change the sign to '–' with probability $\frac{2}{3}$ before passing the slate to the next person. D hands the slate to the referee. The probability that the referee sees a '+' sign is

(a) $\frac{13}{27}$

(b) $\frac{7}{27}$

(c) $\frac{10}{27}$

(d) $\frac{4}{27}$

17. For a random variable X, $P(X = 0) = 1 - \frac{1}{k^2}$ and $P(X = +1) = P(X = -1) = \frac{1}{2k^2}$ where k is a constant greater than 1. Then which one of the following is correct ?

(a) $P(|X| \geq k\sigma) < \frac{1}{k^2}$

(b) $P(|X| \geq k\sigma) = \frac{1}{k^2}$

(c) $P(|X| \geq k\sigma) > 1 - \frac{1}{k^2}$

(d) $P(|X - 1| \geq k\sigma) = \frac{1}{k^2}$

18. For the sequence $\{X_k\}$ of independent random variables the following are defined :

$$P(X_k = \pm 2^k) = 2^{-(2k+1)}, \quad P(X_k = 0) = 1 - 2^{-2k}$$

Which of the following are ***not*** correct ?

1. Weak law of large numbers holds because $E(X_k) = 0$ and $\lim_{n \to \infty} \frac{B_n}{n^2} = 0$ where $B_n = \text{Var}\left(\sum_{i=1}^{n} X_i\right)$.
2. Weak law of large numbers holds by Khinchin's theorem because $E(X_k)$ is finite.
3. Weak law of large numbers holds since X_k are identically distributed.

Select the correct answer using the code given below :

(a) 2 and 3 only

(b) 1 and 2 only

(c) 1 and 3 only

(d) 1, 2 and 3

19. Let X and Y be two random variables. Which one of the following conditions is sufficient for the relation Var(X – Y) = Var(X) + Var(Y) to hold ?

(a) X, Y are statistically independent

(b) X, Y are identically distributed

(c) X = Y

(d) For any X and Y

20. Suppose U and V are independently and uniformly distributed on the interval (0, 1). Then the distribution of max(U, V) is

(a) Beta(1, 1)

(b) Beta(2, 2)

(c) Beta(1, 2)

(d) Beta(2, 1)

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Consider the following for the next three (03) items :

The distribution of marks obtained by 500 candidates in a Statistics paper in a certain examination is as follows :

Marks more than	*Number of Candidates*
0	500
10	460
20	400
30	200
40	100
50	30

21. If 60% of the candidates pass the paper, then the minimum marks obtained by a pass candidate is

(a) 20

(b) 25

(c) 30

(d) 35

22. The value of semi-interquartile range is

(a) 4·25

(b) 8·125

(c) 16·25

(d) 32·5

23. The value of mode of frequency distribution is

(a) 23·13

(b) 24·43

(c) 25·83

(d) 26·13

24. In a series of 2n observations, half of them equal to k and the remaining half equal to $-k$. If the standard deviation of the observations is 2, then $|k|$ is equal to

(a) $\sqrt{2}$

(b) 2

(c) $\sqrt{\frac{2}{n}}$

(d) $\frac{1}{n}$

25. If σ_x^2, σ_y^2 and σ_{x-y}^2 are the variances of X, Y and X – Y respectively, then what is the coefficient of correlation between X and Y ?

(a) $\frac{\sigma_x^2 + \sigma_y^2 - \sigma_{x+y}^2}{2\sigma_x\sigma_y}$

(b) $\frac{\sigma_x^2 + \sigma_y^2 - \sigma_{x-y}^2}{2\sigma_x\sigma_y}$

(c) $\frac{\sigma_x^2 + \sigma_y^2}{2\sigma_x\sigma_y}$

(d) $\frac{\sigma_x^2 - \sigma_y^2}{2\sigma_x\sigma_y}$

26. For a distribution of 10 observations, calculations showed that the first two moments about the origin are 3 and 46 respectively. It was however discovered that the observation 12 was wrongly written as 22. Then the correct value of mean and variance are respectively

(a) 2, 12

(b) 2, 8

(c) 4, 12

(d) 4, 8

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27. Given that x_1 and x_2 are two independent observations drawn from a normal population P_1 and y_1 and y_2 are another two independent observations drawn from a second normal population P_2. In order that $Z = \frac{(x_1 - x_2)^2}{(y_1 - y_2)^2}$ follows F-distribution with (1, 1) degrees of freedom, which one of the following must be true ?

(a) P_1 has $N(\mu_1, \sigma_1^2)$ and P_2 has $N(\mu_1, \sigma_2^2)$

(b) P_1 has $N(0, \sigma_1^2)$ and P_2 has $N(\mu_1, \sigma_2^2)$

(c) P_1 has $N(\mu_1, \sigma_1^2)$ and P_2 has $N(\mu_2, \sigma_2^2)$

(d) P_1 has $N(\mu_1, \sigma^2)$ and P_2 has $N(\mu_2, \sigma^2)$

28. What is the probability that the sample median based on a random sample of size 3, drawn from a distribution with pdf

$$f(x) = \begin{cases} 2x & 0 < x < 1 \\ 0 & \text{otherwise} \end{cases}$$ exceeds $\frac{1}{2}$?

(a) $\frac{13}{32}$

(b) $\frac{17}{32}$

(c) $\frac{27}{32}$

(d) $\frac{29}{32}$

29. Consider the following statements :

1. If $F(n_1, n_2)$ represents an F variate with n_1 and n_2 degrees of freedom, then $F(n_2, n_1)$ is distributed as $\frac{1}{F(n_1, n_2)}$ variate.
2. In $F(n_1, n_2)$ distribution if $n_2 \to \infty$, then n_1F follows t-distribution with n_1 degrees of freedom.
3. If a statistic t follows Student's t-distribution with n degrees of freedom, then t^2 follows F-distribution with (1, n) degrees of freedom.

Which of the above statements are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

30. A continuous random variable X has the density function

$$f(x) = \begin{cases} \frac{3x^2}{\theta^3} & 0 \le x \le \theta \text{ for some } \theta > 0 \\ 0 & \text{otherwise.} \end{cases}$$

Then the ratio of the mode to the median for the distribution is

(a) $2^{-1/3}$

(b) $2^{1/3}$

(c) $\frac{\theta}{2^{1/3}}$

(d) θ

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31. Consider the following statements on the use of F-distribution :

1. It is used to test the equality of variances of two normal populations.
2. It is used to test the equality of variances of several normal populations.
3. It is used to test for the equality of means of several normal populations with identical variance.
4. It is used to test for the independence of two attributes in a contingency table.

Which of the above statements are correct ?

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1 and 4 only

(d) 1, 3 and 4 only

32. Suppose for a given data, the linear, parabolic, power function and exponential models fitted by the principle of least squares respectively are given below :

$M_1 : Y = 3{\cdot}77 + 0{\cdot}92X$

$M_2 : Y = 1{\cdot}21 + 0{\cdot}40X + 0{\cdot}04X^2$

$M_3 : Y = 2{\cdot}58X^{0{\cdot}5}$

$M_4 : Y = 2{\cdot}64e^{0{\cdot}0625X}$

If for any model, $\hat{Y}_i$ denotes the estimated value of Y_i and $\sum_i (Y_i - \hat{Y}_i)^2$ computed for the models M_1, M_2, M_3 and M_4 are 19·37, 5·73, 4·81 and 11·58 respectively, then which one of the following shall be taken as the best possible estimate of Y for X = 16 ?

(a) 18·49

(b) 17·85

(c) 10·32

(d) 7·18

33. If X_1, X_2, X_3 and X_4 are four uncorrelated variables each with variance σ^2, then what is the value of the correlation coefficient between $U = X_1 + X_2 + X_3$ and $V = X_1 + X_2 + X_4$?

(a) 0

(b) $\frac{1}{3}$

(c) $\frac{2}{3}$

(d) 1

34. Given that X, Y and Z = X + 2Y are variables such that Var (X) = 4, Var (Y) = 3 and Var(Z) = 4.

Consider the following statements in respect of the above :

1. The covariance between X and Y is – 3.
2. The correlation between X and Y is $-\frac{\sqrt{3}}{2}$.
3. The regression coefficient of Y on X is $-\frac{3}{4}$.
4. The covariance between X and Z is – 2.

Which of the above statements are correct ?

(a) 1, 2 and 3 only

(b) 1, 3 and 4 only

(c) 2 and 4 only

(d) 1, 2, 3 and 4

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35. Suppose X, Y and Z are independent random variables such that X follows a standard normal distribution; Y and Z follow Chi-square distribution with n_1 and n_2 degrees of freedom respectively.

Consider the following statements in respect of the above :

1. X^2 follows Chi-square distribution with one degree of freedom.

2. $\frac{X}{\sqrt{Y/n_1}}$ follows Student's t-distribution with n_1 degrees of freedom.

3. $\frac{(Y/n_1)}{(Z/n_2)}$ follows F-distribution with (n_1, n_2) degrees of freedom.

4. Y + Z follows Cauchy distribution.

Which of the above statements are correct ?

(a) 1, 2 and 3 only

(b) 2, 3 and 4 only

(c) 1 and 4 only

(d) 1, 2, 3 and 4

36. If X follows F(6, 6) distribution, then consider the following statements :

1. Mean of X is greater than 1.

2. Median of X is equal to 1.

3. Mode of X lies between 0 and 1.

Which of the above statements are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

37. An analysis of monthly wages of workers of two factories A and B belonging to the same group gave the following results :

Statistic	*Factory A*	*Factory B*
Number of workers	50	60
Average daily wages	₹ 186	₹ 175
Variance of wages	81	100

Then the combined variance is given by

(a) 101·36

(b) 111·36

(c) 121·36

(d) 131·36

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38. Chi-square test can be applied to test the

1. Goodness of fit
2. Equality of two population variances
3. Independence of attributes

Which of the above are correct ?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

39. Let $f(x, y) = Ce^{-\frac{Q}{2}}$ where $Q = 2x^2 + y^2 + 2xy - 22x - 14y + 65$ be the pdf of a bivariate normal $BN(\mu_1, \mu_2, \sigma_1^2, \sigma_2^2, \rho)$ distribution. Then $\rho = Corr(X, Y)$ is

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

40. Let (X, Y) be a bivariate normal $BN\left(1, 2, 16, 25, \frac{3}{4}\right)$, then $E(X \mid Y = 7)$ is

(a) 1
(b) 2
(c) 4
(d) $\frac{91}{16}$

41. The polynomial of least degree interpolation of the data (0, 4), (1, 5), (2, 8), (3, 13) is

(a) 4
(b) 3
(c) 2
(d) 1

42. If $x_0 = 2$, $x_1 = 3$ and $x_2 = 5$ and $f(x_0) = 1$, $f(x_1) = 2$ and $f(x_2) = 6$, then the approximate value of f(4) using Lagrange's interpolation formula is

(a) 5·66
(b) 4·66
(c) 3·66
(d) 2·66

43. If h is the increment in the variable x, then $\left(\frac{\Delta^2}{E}\right)x^2$ is equal to

(a) 2h
(b) $2h^2$
(c) $2h^3$
(d) *None of the above*

44. Consider the following statements :

1. Lagrange's interpolation formula is applicable only when arguments are equispaced.
2. The sum of Lagrangean coefficients is unity.

Which of the above statements is/are correct ?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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45. Consider the following statements :

1. Simpson's one-third rule follows from Romberg's method with n = 2.

2. Weddle's rule follows from Romberg's method with n = 4.

Which of the above statements is/are correct ?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

46. Consider the following :

x	0	1	2	3	4
f(x)	5	1	9	25	55

The estimation of f(5) using Newton-Gregory interpolation is

(a) 71

(b) 87·5

(c) 95

(d) 115

47. What is the function whose first difference is $9x^2 + 11x + 5$ with interval of difference equal to 1 ?

(a) $x^3 + 2x^2 - x + \text{constant}$

(b) $2x^3 - 3x^2 + x + \text{constant}$

(c) $3x^3 + x^2 + x + \text{constant}$

(d) $9x^3 + 20x^2 + 5x + \text{constant}$

48. What is the value of

$\Delta^3 [(1 - x)(1 - 2x)(1 - 3x)]$

with interval of difference equal to 1 ?

(a) – 36

(b) – 12

(c) 0

(d) 6

49. The error in evaluating $\int_1^2 x^2\,dx$ using Simpson's one-third rule by dividing the interval (1, 2) into four equal parts is

(a) 0

(b) 1·5

(c) 1·52

(d) 1

50. Consider the following statements for numerical solution of first order differential equations :

1. Euler's method is slow for large x-increment and inaccurate for small x-increment.

2. Modified Euler's method has an error of order h^2.

3. Picard's method is an iterative method.

Which of the above statements is/are correct ?

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1 and 2 only

(d) 3 only

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51. Consider the following :

x	1	2	3	4
f(x)	46	66	81	93

The value of f(3·5) using Newton's Backward Difference Interpolation formula is

(a) 86·25

(b) 87·25

(c) 88·25

(d) 89·25

52. Let the factorial polynomial be $f(x) = x^{(3)} + 2x^{(2)} - 4x + 9$. When the interval of differencing is 1, then mode of f(x) is

(a) $-\frac{4}{3}$

(b) -2

(c) 1

(d) None of the above

53. Consider the following statements with standard notation :

1. $E = 1 + \Delta$
2. $E = e^{hD}$
3. $\nabla = 1 - E^{-1}$

Which of the above are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

54. If δ is the central difference operator, μ is the average operator, Δ is the forward difference operator and ∇ is the backward difference operator, then $\Delta + \nabla$ equals to

(a) $\frac{\mu + \delta}{2}$

(b) $\mu + \delta$

(c) $2\mu\delta$

(d) $\mu\delta$

55. What is $f(3) + \Delta f(2) + \Delta^2 f(1) + \Delta^3 f(1)$ equal to ? (Take the interval of differencing to be unity)

(a) $f(4)$

(b) $\Delta f(4)$

(c) $\Delta^2 f(4)$

(d) $\Delta^3 f(4)$

56. Use Picard's method to compute y(0·2), correct up to two decimal places, where y(x) is the solution of $\frac{dy}{dx} = x - y$, $y(0) = 1$. The value of y(0·2) is

(a) 0·82

(b) 0·83

(c) 0·84

(d) 0·86

57. Milne's method for numerical solution of a differential equation is based on

(a) Prediction only

(b) Correction only

(c) Both prediction and correction

(d) Neither on prediction nor on correction

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58. The sum to 10 terms of the series

$$\frac{1}{2\times 3}\times 2+\frac{2}{3\times 4}\times 4+\frac{3}{4\times 5}\times 8+\frac{4}{5\times 6}\times 16+\ldots$$

is

(a) $\frac{253}{3}$

(b) $\frac{256}{3}$

(c) $\frac{509}{3}$

(d) $\frac{512}{3}$

59. A cubic polynomial takes the following values :

x	0	1	2	3
f(x)	1	0	1	10

Then f(4) equals to

(a) 6

(b) 19

(c) 27

(d) 33

60. The iterative formula for the solution of differential equation $\frac{dy}{dx} = f(x, y)$, $y(x_0) = y_0$ by Euler's method is

(a) $y_{n+1} = y_0 + hf(x_0, y_n)$

(b) $y_{n+1} = y_n + hf(x_0, y_n)$

(c) $y_{n+1} = y_0 + hf(x_n, y_n)$

(d) $y_{n+1} = y_n + hf(x_n, y_n)$

61. Consider the following :

1. Break
2. If
3. Do-while
4. Continue

Which of the above are jump control statements ?

(a) 1 and 4 only

(b) 2 and 3 only

(c) 1, 3 and 4 only

(d) 3 and 4 only

62. Which one of the following is the correct sequence of stages in problem solving ?

(a) Precise formulation, Analysis, Computation of the problem

(b) Designing, Coding, Analysis, Debugging the program

(c) Coding, Precise formulation, Computation, Debugging the problem

(d) Coding, Compilation, Designing, Debugging and Executing the program

63. An operating system is crucial for the operation of a computer system because it

1. controls the hardware of the computer.
2. runs the antivirus software.
3. manages files and directories.
4. allows Google search.

Which of the above are the most crucial functions of an operating system ?

(a) 1 and 2 only

(b) 2 and 4 only

(c) 1 and 3 only

(d) 1, 2, 3 and 4

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64. What is the decimal equivalent of the hexadecimal number FFFE ?

(a) 25535

(b) 32766

(c) 65244

(d) 65534

65. Consider the following statements :

1. A compiler checks the source code for syntax errors and if it is error-free, creates an object code.
2. Linking means resolving library references to embed necessary routines.

Which of the above statements is/are correct ?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

66. Consider the following statements :

1. A signed or unsigned number with a decimal point or exponent or both is called a real or floating point constant.
2. The decimal point in a floating point number is always after the number.
3. The decimal point is permitted in the exponent part.

Which of the above statements is/are correct ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 only

(d) 2 only

67. Consider the following :

1. Computer port
2. Modem type
3. Modem speed
4. Modem size

Which of the above factors are important when using a modem for data communication ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1 and 4 only

68. The size of memory in any system is decided/calculated by the

(a) Number of data lines

(b) Number of address lines

(c) Number of bits in a single memory location

(d) Number of bits in a single word

69. What is the function of a Firewall ?

1. To authenticate user before access
2. To block traffic intended for a particular IP address
3. To create a wall to prevent unauthorised access for network

Select the correct answer using the code given below :

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

70. Machine language programs are very efficient because

(a) they are easy to develop

(b) their object code is very small in size

(c) they are directly executed by CPU

(d) they are easily understood by programmers

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71. Consider the following statements in respect of a mouse :

1. It controls the two-dimensional movement of the cursor on the displayed screen.
2. It is usually of two different types, mechanical and optical.
3. It can be used as an alternate to the keyboard for all purposes.
4. It is an input device.

Which of the above statements are correct ?

(a) 3 and 4 only
(b) 1 and 4 only
(c) 1, 2 and 4 only
(d) 1, 2 and 3 only

72. Which one of the following hardware components is normally used to accommodate the secondary cache ?

(a) Motherboard
(b) Processor
(c) RAM
(d) Any secondary storage device

73. The file manager is responsible for

1. Naming files
2. Saving files
3. Deleting files

Which of the above are correct ?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

74. Collecting the data and converting it into information is called

(a) Compiling
(b) Processing
(c) Importing
(d) Exporting

75. SSL in Linux provides

1. Password protection
2. Logging
3. Security

Which of the above is/are correct ?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 3 only
(d) 1, 2 and 3

76. Consider the following statements :

Statement I :

Intranet is a wide area network that uses TCP/IP protocol and it is a private network of an organization.

Statement II :

With advancements in computer security, cryptography and firewalls, the Internet is completely secure.

Which one of the following is correct in respect of the above statements ?

(a) Both Statement I and Statement II are true and Statement II is the correct explanation of Statement I
(b) Both Statement I and Statement II are true but Statement II is ***not*** the correct explanation of Statement I
(c) Statement I is true but Statement II is false
(d) Statement I is false but Statement II is true

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77. What is the purpose of the Memory Address Register ?

(a) To store the address of the next location in the main memory

(b) To store the address of the next location in the secondary memory

(c) To store the address of the next location in the cache memory

(d) To store the address of an output device to which the data is to be sent

78. Consider the following statements :

1. C is a high level language.
2. C is an assembly language.
3. A compiler translates a high-level language program to a machine language program.
4. An assembler translates an assembly language program to a machine language program.

Which of the above statements are correct ?

(a) 1 and 3 only

(b) 2, 3 and 4 only

(c) 3 and 4 only

(d) 1, 3 and 4 only

79. Cache memory is used to transfer data between the

(a) Main memory and secondary memory

(b) Processor and an input device

(c) Main memory and processor

(d) Processor and an output device

80. Consider the following statements :

1. If-then-else is a sequence structure.
2. Sequence structures require decision-making.
3. If-then-else is a selection structure.
4. In repetition structures, the same set of statements are executed several times.
5. Do-while is a type of selection structure.

Which of the above statements are correct ?

(a) 1 and 2 only

(b) 3 and 4 only

(c) 1, 2 and 5 only

(d) 4 and 5 only

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	Series: A				Subject			STAT PAPER-I			(ONE)
	Max. marks			200	No. of Items dropped:				01		
	Items to be taken for scoring:						79				
1	D	16	X	31	A	46	D	61	A	76	C
2	B	17	B	32	C	47	C	62	A	77	A
3	A	18	A	33	C	48	A	63	C	78	D
4	C	19	A	34	D	49	A	64	D	79	C
5	A	20	D	35	A	50	D	65	C	80	B
6	B	21	B	36	D	51	B	66	C		
7	B	22	B	37	C	52	A	67	B		
8	D	23	C	38	C	53	D	68	B		
9	A	24	B	39	D	54	C	69	D		
10	A	25	B	40	C	55	A	70	C		
11	C	26	B	41	C	56	C	71	C		
12	D	27	D	42	C	57	C	72	A		
13	A	28	C	43	B	58	C	73	D		
14	B	29	C	44	B	59	D	74	B		
15	C	30	B	45	A	60	D	75	C		

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	Items to be taken for scoring:						79				
1	A	16	B	31	D	46	C	61	B	76	D
2	C	17	D	32	B	47	A	62	A	77	C
3	C	18	C	33	A	48	D	63	D	78	A
4	D	19	C	34	C	49	C	64	C	79	A
5	A	20	B	35	A	50	B	65	A	80	D
6	D	21	C	36	B	51	A	66	C		
7	C	22	D	37	B	52	A	67	C	[illegible]	
8	C	23	A	38	D	53	C	68	C	[illegible]	
9	D	24	B	39	A	54	D	69	D	[illegible]	
10	C	25	C	40	A	55	C	70	D	[illegible]	
11	B	26	X	41	C	56	C	71	C	[illegible]	
12	B	27	B	42	A	57	B	72	C	[illegible]	
13	C	28	A	43	D	58	B	73	B	[illegible]	
14	B	29	A	44	B	59	D	74	B	[illegible]	
15	B	30	D	45	C	60	C	75	A	[illegible]	

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	Items to be taken for scoring:						79				
1	B	16	B	31	C	46	C	61	C	76	C
2	B	17	B	32	D	47	B	62	A	77	C
3	C	18	D	33	A	48	B	63	D	78	C
4	B	19	A	34	B	49	D	64	B	79	D
5	B	20	A	35	C	50	C	65	C	80	D
6	B	21	A	36	X	51	C	66	C	[illegible]	[illegible]
7	D	22	C	37	B	52	C	67	A	[illegible]	[illegible]
8	C	23	C	38	A	53	B	68	D	[illegible]	[illegible]
9	C	24	D	39	A	54	B	69	C	[illegible]	[illegible]
10	B	25	A	40	D	55	A	70	B	[illegible]	0
11	D	26	D	41	A	56	D	71	B	8[illegible]	[illegible]
12	B	27	C	42	A	57	C	72	A	[illegible]	[illegible]
13	A	28	C	43	C	58	A	73	D	[illegible]	[illegible]
14	C	29	D	44	D	59	A	74	C	[illegible]	[illegible]
15	A	30	C	45	C	60	D	75	A	[illegible]	[illegible]

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	Items to be taken for scoring:						79				
1	C	16	D	31	B	46	C	61	C	76	C
2	D	17	C	32	B	47	C	62	C	77	B
3	A	18	C	33	C	48	C	63	B	78	B
4	B	19	D	34	B	49	D	64	B	79	D
5	C	20	C	35	B	50	D	65	A	80	C
6	X	21	D	36	B	51	C	66	D	[illegible]	[illegible]
7	B	22	B	37	D	52	A	67	C	[illegible]	[illegible]
8	A	23	A	38	C	53	D	68	A	[illegible]	[illegible]
9	A	24	C	39	C	54	B	69	A	[illegible]	[illegible]
10	D	25	A	40	B	55	C	70	D	[illegible]	[illegible]
11	A	26	B	41	B	56	C	71	A	[illegible]	[illegible]
12	C	27	B	42	A	57	A	72	A	[illegible]	[illegible]
13	C	28	D	43	D	58	D	73	C	[illegible]	[illegible]
14	D	29	A	44	C	59	C	74	D	[illegible]	[illegible]
15	A	30	A	45	A	60	B	75	C	[illegible]	[illegible]

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