I.E.S./I.S.S. Examination, 2026

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO

T.B.C. : SNCS–A–STS **Test Booklet Series**

A

Serial No. 1001645

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 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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For the following **three (03)** items :

Two random variables X and Y have a discrete joint distribution given by

$$P(X = x, Y = y) = \begin{cases} c|x+y| & \text{for } x, y \in \{-2, -1, 0, 1, 2\} \\ 0; & \text{otherwise} \end{cases}$$

1. What is $\text{Var}(X)$ equal to?

(a) 2·7

(b) 2·4

(c) 2·35

(d) 1·17

2. What is $E(Y|X = 1)$ equal to?

(a) 1/7

(b) 3/7

(c) 4/7

(d) 6/7

3. What is $P(|X - Y| \leq 1)$ equal to?

(a) 0·06

(b) 0·7

(c) 0·12

(d) 0·41

For the next **two (02)** items that follow :

Let $f_X(x)$ be p.d.f. of $N(0, 1)$ variates and

$$\Phi(x) = \int_{-\infty}^{x} f_X(\theta)\, d\theta$$

4. What is $\Phi(-100)$ equal to?

(a) $-\Phi(100)$

(b) $1 - \Phi(100)$

(c) $\frac{1}{2}\Phi(100)$

(d) $\frac{1}{2} - \Phi(100)$

5. What is $\int_{-10}^{10}\int_{-y}^{y} f_X(x)\, dxdy$ equal to?

(a) 1/2

(b) 1/4

(c) 0

(d) 1/3

For the next **two (02)** items that follow :

The joint probability density function of X and Y is given as

$$f(x, y) = \begin{cases} \frac{2(x+2y)}{3}; & 0 < x < 1, \quad 0 < y < 1 \\ 0; & \text{elsewhere} \end{cases}$$

6. What is the value of $E[X|Y = 0 \cdot 5]$?

(a) 1/9

(b) 1/3

(c) 5/9

(d) 7/9

7. What is the value of conditional variance of X given $Y = 0 \cdot 5$?

(a) 11/162

(b) 13/162

(c) 5/54

(d) 17/162

For the next **two (02)** items that follow :

Let the joint p.d.f. of (X, Y) be given by

$$f(x, y) = \begin{cases} x^2 + \frac{xy}{3}; & 0 < x < 1,\ 0 < y < 2 \\ 0; & \text{otherwise} \end{cases}$$

8. The expression for conditional density of Y given X is

(a) $\frac{3x+y}{2(3x+1)}$; $0 < y < 2,\ 0 < x < 1$

(b) $\frac{x(3x+y)}{2x(3+x)}$; $0 < y < 2,\ 0 < x < 1$

(c) $\frac{x(3+y)}{3x+1}$; $0 < y < 2,\ 0 < x < 1$

(d) $\frac{3x+y}{x(6+y)}$; $0 < y < 2,\ 0 < x < 1$

9. The expression for conditional density of X given Y is

(a) $\frac{x(3x+y)}{2x(3+x)}$; $0 < x < 1,\ 0 < y < 2$

(b) $\frac{3x+y}{x(6+y)}$; $0 < x < 1,\ 0 < y < 2$

(c) $\frac{2x(3x+y)}{2+y}$; $0 < x < 1,\ 0 < y < 2$

(d) $\frac{x(6x+y)}{2+xy}$; $0 < x < 1,\ 0 < y < 2$

10. Let X, Y, Z be independent. If X and Y each has geometric distribution with parameter $1/2$ and Z has a negative binomial distribution with parameters 3 and p, then $E(X+Y-Z) = 0$, if and only if p equals

(a) $1/3$

(b) $3/4$

(c) $2/5$

(d) $3/5$

11. If $X \sim N(0, 1)$ and $Y \sim N(0, 1)$ are independent random variables, then the distribution of X/Y is

(a) Chi-square with degrees of freedom 2

(b) Cauchy (0, 1)

(c) Cauchy (1, 1)

(d) F-distribution with degrees of freedom (1, 1)

12. There are three identical urns containing white and black balls. The first urn contains 2 white and 3 black balls, the second urn contains 3 white and 5 black balls, and the third urn contains 5 white and 2 black balls. An urn is chosen at random and a ball is drawn from it. If the ball is white, then what is the probability that the second urn is chosen?

(a) 35/139

(b) 200/417

(c) 112/417

(d) 105/139

13. Let (X, Y) have a bivariate normal distribution with parameters $\mu_x = 5$, $\mu_y = 8$, $\sigma_x^2 = 16$, $\sigma_y^2 = 9$ and $\rho_{xy} = 0 \cdot 6$. What is the coefficient of regression of Y on X?

(a) 7/16

(b) 9/20

(c) 1/2

(d) 3/8

14. Let X be a continuous random variable whose density function is constant in $a \le x \le b$ and zero elsewhere. What is the standard deviation of X?

(a) $(2a+b)/(2\sqrt{3})$

(b) $(b-a)/(2\sqrt{3})$

(c) $(a+b)/2$

(d) $(b-a)/2$

15. A random variable X has the following probability mass function $p(x) = x/15$, where $x = 1, 2, 3, 4$ and 5. What is $E(X|x > 1)$ equal to?

(a) 27/7

(b) 45/14

(c) 15/7

(d) 15/14

16. A random variable X has the following distribution :

$$f(x) = \begin{cases} \frac{1}{12}; & 0 < x < 12 \\ 0; & \text{otherwise} \end{cases}$$

What is $P(5 < X < 7 | X > 6)$ equal to?

(a) 1/3

(b) 3/4

(c) 2/3

(d) 1/6

17. Let X have a binomial distribution with parameters n and p. If $q = 1-p$, then what is $P[X = 0 \text{ or even}]$ equal to?

(a) $2(q-p)^n$

(b) $[1+(q-p)^n]/2$

(c) $[1-(q-p)^n]/2$

(d) $1+(q-p)^n$

18. Let $X_1, X_2, \ldots$ be a sequence of i.i.d. random variables and $S_N = X_1 + X_2 + \ldots + X_N$, where N is a random variable independent of X_i, $i = 1, 2, 3, \ldots$. If $M_{X_1}(t) = E(e^{tX_1})$, then the moment generating function of S_N is

(a) $\log(\log M_{X_1}(t))$

(b) $M_N(\log M_{X_1}(t))$

(c) $M_{X_1}(\log M_N(t))$

(d) $M_N(e^{M_{X_1}(t)})$

19. If the joint p.d.f. of two random variables X and Y is

$$f(x, y) = \begin{cases} \frac{21}{2}x^2 y; & x^2 \le y, \ 0 < x < 1 \\ 0; & \text{otherwise} \end{cases}$$

then the value of $P(X \ge Y)$ is

(a) 0·7

(b) 0·3

(c) 0·12

(d) 0·88

20. A number X is chosen at random between 0 and 6, and another number Y is chosen at random between 0 and 9. What is the probability that the equation $Z^2 - XZ + Y = 0$ has real roots?

(a) 1/2

(b) 1/3

(c) 2/3

(d) 1/4

21. The random variables X and Y have joint p.d.f.

$$f(x, y) = \frac{1}{3}(x+y);\ 0 \le x \le 1,\ 0 \le y \le 2$$

What is the value of $E[Y \mid X = 2]$?

(a) 8/9

(b) 10/9

(c) 11/9

(d) 13/9

22. How many pairs of observations (n) must be included in a sample in order that an observed correlation coefficient of 0·6 shall have a calculated value of t greater than 2·72 ?

(a) $n < 10$

(b) $10 < n < 13$

(c) $13 < n < 15$

(d) $n > 15$

23. If $b_{13\cdot2}$ is the regression coefficient of X_1 and X_3 on X_2, and $b_{31\cdot2}$ is the regression coefficient of X_3 and X_1 on X_2, then what is $b_{13\cdot2} \times b_{31\cdot2}$ equal to?

(a) $r^2_{12\cdot3}$

(b) $r^2_{13\cdot2}$

(c) $r^2_{23\cdot1}$

(d) r^2

24. Let $(X_1, X_2, ..., X_n)$ be a random sample from $N(\mu, \sigma^2)$, then the distribution of $\frac{ns^2}{\sigma^2}$, where $s^2 = \frac{1}{n}\sum_{i=1}^{n}(X_i - \bar{X})^2$, is

(a) $\chi^2_{(n)}$

(b) $\chi^2_{(2n)}$

(c) $\chi^2_{(n-1)}$

(d) $\chi^2_{(2n-2)}$

25. If the coefficient of correlation $r(2x, y) = 0\cdot25$, then what is

$$r\left(4x - 3, \frac{7-4y}{8}\right)$$

equal to?

(a) 1/4

(b) 1/8

(c) −1/4

(d) −1/8

26. Let $Y_1 \le Y_2 \le Y_3 \le Y_4 \le Y_5 \le Y_6$ be the order statistics from a c.d.f. $F(x) = 1 - e^{-\lambda x}$, where $\lambda = 0\cdot5$. What is the c.d.f. of Y_1?

(a) $1 - e^{y/2}$

(b) $1 - e^{y/3}$

(c) $1 - e^{3y}$

(d) $1 - e^{-3y}$

27. If $R_{i\cdot jk}$ represents multiple correlation coefficient, r_{ij} represents simple correlation coefficient and σ_i represents standard deviation of variate X_i for a multivariate data set, then consider the following statements :

I. $R^2_{1\cdot23} = \sigma_1^2\sigma_2^2(1 - r_{12}^2)(1 - r_{13})^2$

II. $R^2_{1\cdot23} \ge r^2_{12}$

III. $R^2_{1\cdot23} \ge r^2_{13\cdot2}$

Which of the statements given above are correct?

(a) I and II only

(b) II and III only

(c) I and III only

(d) I, II and III

28. The first of the two samples has 100 items with mean 15 and standard deviation 3. If the whole group has 250 items with mean 15·6 and standard deviation $\sqrt{13 \cdot 44}$, then what is the variance of the second group?

(a) 16

(b) 12

(c) 4

(d) 2

29. Let $(X, Y) \sim \text{BVN}(\mu_1, \mu_2, \sigma_1^2, \sigma_2^2, \rho)$. If $\sigma_1^2 = 2$, $\sigma_2^2 = 3$ and $\rho = 0$, then consider the following :

I. $E(X) = E(Y)$

II. $E(XY) = 2$

III. X and Y are independent

Which of the above is/are correct?

(a) I only

(b) II only

(c) III

(d) I and II

30. The joint p.d.f. of X and Y is given by

$$f(x, y) = \frac{y}{(1+x)^4} e^{\frac{-y}{1+x}};\ x, y \geq 0$$

Then the regression of Y on X is

(a) exponential

(b) linear

(c) polynomial of degree 2

(d) polynomial of degree 3

31. Two normal populations π_1 and π_2 have their means equal, but standard deviation of π_2 is twice that of π_1 having standard deviation σ. Then in the samples of size 2000 from each population, the difference of sample means in all probability is

(a) less than $0 \cdot 05\sigma$

(b) less than $0 \cdot 15\sigma$

(c) greater than $0 \cdot 05\sigma$

(d) greater than $0 \cdot 15\sigma$

32. The mean height of 50 male students who showed above average participation in college athletics was 68·2 inches with a standard deviation of 2·5 inches, while 50 male students who showed no interest in such participation had a mean height of 67·5 inches with a standard deviation of 2·8 inches. In order that the observed difference in the mean height to be significant at 5% level of significance, the sample size of each of the two groups has to be increased by (the critical value of Z at 5% level of significance is 1·645)

(a) at least 78

(b) at most 78

(c) at least 28

(d) at most 28

33. A normal population has a mean of 0·1 and standard deviation of 2·1. For a random sample of size 900, what would be the value of $P(\bar{x} < 0)$?

[Given that $P(0 < Z < 1 \cdot 43) = 0 \cdot 4236$]

(a) 0·0764

(b) 0·4236

(c) 0·5764

(d) 0·9236

34. When sampling is without replacement, then $V(\bar{x}) = \frac{\sigma^2}{n}\left(\frac{N-n}{N-1}\right)$. The factor $\frac{N-n}{N-1}$ is ignored under which of the following conditions?

I. n is small compared to N

II. $n = N$

III. Population is infinite

Select the correct answer using the code given below.

(a) I only

(b) III only

(c) I and III only

(d) I, II and III

35. A random sample of size 5 is taken from a normal population with mean 2·5 and variance 36. The probability that the sample variance

$$S^2 = \frac{1}{n-1}\sum_{i=1}^{n}(X_i - \bar{X})^2$$

lies between 27 and 45 is

[Given, $P(\chi_4^2 \geq 3) = 0 \cdot 55783$ and $P(\chi_4^2 \leq 5) = 0 \cdot 71270$]

(a) 0·15487

(b) 0·84513

(c) 0·27053

(d) 0·34513

36. The t-statistic for a given sample is calculated to be 3. If the sample variance is doubled, then the new t-statistic will become

(a) 6

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

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

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

37. Kruskal-Wallis test is exactly equivalent to one-way ANOVA when

(a) data are normal

(b) population distributions are identical and normal

(c) sample sizes are equal

(d) all observations are replaced by their ranks

38. If $X \sim U(0, 1)$, then $P(X_{(1)} > x)$ is

(a) $1 - x^n$

(b) $(1-x)^n$

(c) nx^{n-1}

(d) x^n

39. Consider a sample of odd size n from $U(0, 1)$ population. Then the mean and variance of distribution of median are respectively

(a) 1/2 and 1/4

(b) 1/2 and $1/(4n+8)$

(c) 1/4 and $(n-3)/(2n+4)$

(d) Both mean and variance do not exist

40. What is the mean of the numbers $1 . n^2$, $2 . (n-1)^2$, $3 . (n-2)^2$, ..., $n . 1^2$?

(a) $(n+1)^2(n+2)/12$

(b) $(n+1)^2/4$

(c) $n(n+1)^2/12$

(d) $(n+2)^2(n+4)/12$

41. If the interval of difference is h, then what is $\Delta[\log f(x)]$ equal to?

(a) $\log\left[1+\frac{Ef(x)}{f(x)}\right]$

(b) $\log\left[1-\frac{\Delta f(x)}{f(x)}\right]$

(c) $\log\left[1+\frac{\Delta f(x)}{f(x)}\right]$

(d) $\log\left[1-\frac{Ef(x)}{f(x)}\right]$

42. A cubic polynomial $f(x)$ takes values as in the following table :

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

What is $f(4)$ equal to?

(a) 35

(b) 33

(c) 31

(d) 29

43. Consider the following statements :

I. The $(n+1)$th divided differences of a polynomial of nth degree are zero, where n is a natural number.

II. The nth divided difference for a polynomial of degree n can be expressed as the quotient of two determinants each of order n, where n is a natural number.

Which of the statements given above is/are correct?

(a) I only

(b) II only

(c) Both I and II

(d) Neither I nor II

44. The lowest possible degree of the polynomial $p(x)$ using Newton's divided difference formula which assumes the values 48, 100, 294, 900, 1210 and 2028, when x takes the values 4, 5, 7, 10, 11 and 13 respectively, is

(a) 3

(b) 4

(c) 5

(d) 6

45. If the interval of difference is h, then what is

$$\left(\frac{\Delta^2}{E}\right)e^x \times \frac{Ee^x}{\Delta^2 e^x}$$

equal to?

(a) 1

(b) e^{-x}

(c) e^{x+h}

(d) e^x

46. The third divided difference of the function $(x^3 - 2x)$ with arguments 2, 4, 9, 10 is

(a) 1

(b) 2

(c) 3

(d) 4

47. What is $\mu[f(x)\,g(x)]$ equal to?

(a) $\delta f(x)\,\delta g(x) + \frac{1}{4}\mu f(x)\,\mu g(x)$

(b) $\mu f(x)\,\mu g(x) + \frac{1}{4}\delta f(x)\,\delta g(x)$

(c) $\mu f(x)\,\delta g(x) + \delta f(x)\,\mu g(x)$

(d) $\frac{1}{4}[\mu f(x)\,\delta g(x) + \delta f(x)\,\mu g(x)]$

48. Which one of the following is the second iterate of the Picard's approximation of the initial value problem given below?

$$\frac{dy}{dx} = 1 + x + y,\ y(0) = 1$$

(a) $1 + 3x + x^2 + \frac{x^3}{6}$

(b) $1 + 2x + \frac{3}{2}x^2 + \frac{x^3}{6}$

(c) $1 + x + \frac{3}{2}x^2 + \frac{x^3}{6}$

(d) $1 + 2x - \frac{3}{2}x^2 + \frac{x^3}{6}$

49. If the interval of difference is 1, then what is the value of the following?

$$\Delta^4[(x-1)(1-2x)(1-3x)(1-4x)]$$

(a) 576

(b) 24

(c) –24

(d) –576

50. Consider the following table :

x	0	1/4	1/2	3/4	1
$f(x)$	1	4/5	2/3	4/7	1/2

Apply Simpson's one-third rule with 4 equal subintervals to estimate the area bounded by the curve and the x-axis from $x = 0$ to $x = 1$. If the area is A, then what is $2520A$ equal to?

(a) 1547

(b) 1650

(c) 1747

(d) 1850

51. It is given that $f(1) = 1$, $f(2) = 0 \cdot 5$, $f(3) = 0 \cdot 3$, $f(4) = 0 \cdot 25$, $f(5) = 0 \cdot 20$. What is the estimated value of the integral $\int_1^5 f(x)\,dx$ when estimated by trapezoidal rule?

(a) 1·45

(b) 1·55

(c) 1·65

(d) 1·75

52. It is given that $f(1) = 1$, $f(2) = 0 \cdot 5$, $f(3) = 0 \cdot 3$, $f(4) = 0 \cdot 25$, $f(5) = 0 \cdot 20$. What is the estimated value of the integral $\int_1^5 f(x)\,dx$ when estimated by Simpson's one-third rule?

(a) 1·60

(b) 1·62

(c) 1·65

(d) 1·68

53. The estimation of the global truncation error for trapezoidal rule for $\int_a^b f(x)\,dx$ by partitioning into n equal subintervals with $h = \frac{b-a}{n}$ and $\xi \in [a, b]$ is

(a) $-\frac{1}{2}nh^2 f'(\xi)$

(b) $-\frac{1}{12}nh^3 f''(\xi)$

(c) $-\frac{3}{80}nh^5 f^{iv}(\xi)$

(d) $\frac{1}{2}nh^2 f''(\xi)$

54. Let

$$\frac{dy}{dx} = \frac{y-x}{y+x};\ y(0) = 1$$

with step size $h = 0 \cdot 05$. Apply forward Euler method to estimate the value of $y(0 \cdot 1)$. What is the approximate value of $y(0 \cdot 1)$?

(a) 1·005

(b) 1·05

(c) 1·10

(d) 1·50

55. Backward Euler method is used to solve the initial value problem $\frac{dy}{dx} = -8y$; $y(0) = 1$. Which one of the following is correct?

(a) For any step size $h > 0$, the method is absolute stable

(b) For any step size $h < 1/8$ only, the method is absolute stable

(c) For any step size $h < 1/4$ only, the method is absolute stable

(d) For any step size $h < 1$ only, the method is absolute stable

56. An estimate of the truncation error $e(x)$ in the Lagrange interpolation polynomial is given by

(a) $\dfrac{(x-x_0)(x-x_1)\ldots(x-x_n)}{(n+1)!}\,y^n(\xi)$

(b) $\dfrac{(x-x_0)(x-x_1)\ldots(x-x_n)}{(n+1)!}\,y^{n+1}(\xi)$

(c) $\dfrac{(x-x_0)(x-x_1)\ldots(x-x_n)}{n!}\,y^{n-1}(\xi)$

(d) $\dfrac{(x-x_0)(x-x_1)\ldots(x-x_n)}{n!}\,y^n(\xi)$

where $x_0 \le \xi \le x_n$.

57. Let $\dfrac{du}{dt} = -2tu^2$; $u(0) = 1$ with step size $h = 0{\cdot}2$. Apply forward Euler method to estimate the value of $u(0{\cdot}4)$. What is that value?

(a) 0·84

(b) 0·86

(c) 0·92

(d) 0·96

58. If $-1 < x < 1$, then what is the product $(1+x+x^2+x^3+\ldots)(1-x+x^2-x^3+\ldots)$ equal to?

(a) $1+x^2+x^4+x^6+\ldots$

(b) $1-x^2+x^4-x^6+\ldots$

(c) $1-x^2+x^6-x^{10}+\ldots$

(d) $1+x^2+x^6+x^{10}+\ldots$

59. Let

$$P = \left(\binom{n}{1} + \binom{n}{2}\Delta + \binom{n}{3}\Delta^2 + \ldots + \binom{n}{n}\Delta^{n-1}\right) y_1$$

and $Q = y_1 + y_2 + \ldots + y_n$. If the interval of difference is $h = 1$, then what is P/Q equal to?

(a) 1

(b) n

(c) $2n+1$

(d) n^2

60. Forward Euler method is used to solve the equation $\dfrac{dy}{dx} = -20y$; $y(0) = 1$ with step size h. For which one of the following values of h, the method is absolutely stable?

(a) 0·05

(b) 0·15

(c) 0·25

(d) 0·35

61. Which one of the following is the central part of UNIX operating system that manages and controls the communication between various hardware and software components of a computer system?

(a) Shell
(b) Kernel
(c) Compiler
(d) Device driver

62. Which one of the following IEEE wireless standards has the maximum data rate (Mbps)?

(a) 802.11a
(b) 802.11ad
(c) 802.11g
(d) 802.11b

63. Consider the following statements :

I. The equivalent octal number of the decimal number 45796 is 131344.

II. The equivalent hexadecimal number of the octal number 365 is 0F5.

Which of the statements given above is/are correct?

(a) I only
(b) II only
(c) Both I and II
(d) Neither I nor II

64. Which one of the following is ***not*** a process state?

(a) Ready
(b) Executing
(c) Deadlock
(d) Terminated

65. Paging with swapping is also known as

(a) demand paging
(b) segmentation
(c) swapping
(d) None of the above

66. What is the fixed length of the instruction format used in RISC processors?

(a) 30 bits
(b) 16 bits
(c) 32 bits
(d) 24 bits

67. Consider the following statements in respect of Python programming language :

I. It can be used to create web applications.

II. It is interpreted language.

III. It is platform-independent language.

Which of the statements given above are correct?

(a) I and II only
(b) II and III only
(c) I and III only
(d) I, II and III

68. Which one of the following is an International Standard for Information Security Management?

(a) ISO/IEC 27001
(b) ISO 9001
(c) ISO 14001
(d) ISO 45001

69. Which one of the following protocols is responsible for determining the Media Access Control (MAC) address corresponding to an IP address?

(a) TCP
(b) FTP
(c) ARP
(d) SMTP

70. UNIX operating system is written in which language?

(a) C
(b) COBOL
(c) JAVA
(d) FORTRAN

71. What is the medium used in optical storage systems for reading and recording data?

(a) Ultraviolet light

(b) High-energy visible light

(c) Laser light

(d) Infrared light

72. A flatbed plotter moves its pin in *X-Y* direction. If the pen speed is increased too much, what will be the effect on drawing quality?

(a) Better resolution

(b) No effect

(c) Better accuracy

(d) Lines may be distorted

73. In an absolute loading scheme, which function is normally performed by the assembler instead of the loader?

(a) Combining object modules

(b) Allocation

(c) Linking

(d) Loading

74. A virus that modifies its code each time it spreads to evade detection by antivirus software is known as

(a) stealth virus

(b) multipartite virus

(c) polymorphic virus

(d) boot sector virus

75. Which one of the following techniques is being used by a peripheral device to transfer data continuously without constant intervention of CPU?

(a) Program-controlled data transfer

(b) Direct memory access

(c) Polling

(d) Interrupt-driven data transfer

76. Rohit receives an e-mail that states that his credit card is going to be cancelled. In order to prevent this, the e-mail advises Rohit to click on the provided link and sign into his online banking account, which Rohit does. A week later, Rohit notices that ₹ 10,000 has been withdrawn from his bank account. What has Rohit fallen victim to?

(a) Trojan Horse

(b) Online blackmail

(c) Phishing scam

(d) Virus

77. A page fault in operating system

(a) refers to the page used in the previous page reference

(b) occurs when a page program occurs in a page memory

(c) refers to an access to the page not currently in the memory

(d) refers to an error specific page

78. A laser printer has a resolution of 1200 dpi. If a page measures 8×10 inches, how many total dots can theoretically be printed on one page?

(a) 0·096 million

(b) 96 million

(c) 115·2 million

(d) 120 million

79. A malware that is capable of transferring from one computer to another without any user interaction is known as

(a) Trojan

(b) worm

(c) boot sector virus

(d) spyware

80. Which one of the following is used for storing the results produced by arithmetic and logic unit?

(a) Program counter

(b) Accumulator

(c) Memory address register

(d) Instruction register

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