

Booklet Serial No.

Signature Invigilator

Maulana Azad National Urdu University**Bachelor of Technology (CS & Civil – SF)****Entrance Test – May 2026****Question Paper cum Answer Script**

Hall Ticket No.

OMR Serial No.

Time: 2hrs**Maximum Marks: 100****INSTRUCTIONS FOR CANDIDATES**

1. Candidate should write their Hall Ticket number and OMR serial number on the space provided above. Candidate should not write their Name, Hall Ticket number and OMR Serial Number at any other place.
2. This booklet contains **(44)** pages. The Candidate should check the booklet before taking the Test. In case of any discrepancy, a new booklet may be provided by the Invigilator.
3. The question booklet contains 100 Multiple Choice Questions. For each question there are four options, (A), (B), (C), (D). The candidate is required to choose the correct answer and darken the circle with blue / black ballpoint pen in the OMR sheet against the corresponding answer.
4. The candidate will get one mark for each correct answer in the OMR sheet. If the candidate does not bubble the correct answer against the corresponding question number in the OMR sheet, they will not get marks.
5. If the candidate bubbles more than one circle in OMR Sheet for any question, marks shall not be awarded for the question.
6. There are no Negative marks.
7. At the end of Entrance Test, candidates are allowed to take their question booklet.

MATHEMATICS

1. $i + i^2 + i^3 + i^4 + \dots i^{100} =$
 (A) 0 (B) 1
 (C) i (D) $-i$
2. If $\text{Arg } z_1 = \pi, \text{Arg } z_2 = \frac{-\pi}{2}$ then $\text{Arg}(z_1.z_2) = \dots$
 (A) $-\pi/2$ (B) -2
 (C) $\pi/2$ (D) $1/2$
3. The number of terms in the expansion of $(2a + 3b + c)^5$ is ----
 (A) 20 (B) 23
 (C) 22 (D) 21
4. If ${}^{18}P_{r-1} : {}^{17}P_{r-1} = 9 : 7$ then $r = \dots$
 (A) 4 (B) 5
 (C) 6 (D) 3
5. If ${}^{12}C_{s+1} = {}^{12}C_{2s-5}$ then $s = \dots$
 (A) 3 (B) 4
 (C) 5 (D) 6
6. If $P(A \cup B) = 0.45, P(A \cap B) = 0.15$ then $P(\bar{A}) + P(\bar{B}) = \dots$
 (A) 1.0 (B) 1.2
 (C) 1.45 (D) 1.40
7. If A and B are mutually exclusive events such that $P(A) = \frac{1}{2}P(B)$ and $A \cup B = S$ then $P(A) = \dots$
 (A) $\frac{2}{3}$ (B) $\frac{1}{3}$
 (C) $\frac{1}{4}$ (D) $\frac{3}{4}$

8. If $-1, 2, \alpha$ are the roots of $2x^3 + x^2 - 7x - 6 = 0$ then $\alpha = \dots$
- (A) $\frac{3}{2}$ (B) $\frac{1}{2}$
 (C) $-\frac{3}{2}$ (D) $-\frac{1}{2}$
9. If the equation $x^2 - 15 - m(2x - 8) = 0$ has equal roots then $m = \dots$
- (A) 3, 5 (B) -3, 5
 (C) -3, -5 (D) 3, -5
10. The Integrating factor of $\frac{dy}{dx} - \left(\frac{1}{x}\right)y = 2x^2 \sec^2 2x$ is
- (A) x (B) $-x$
 (C) $-\frac{1}{x}$ (D) $\frac{1}{x}$
11. The general solution of $\frac{dy}{dx} = \frac{x}{y}$ is
- (A) $x^2 - y^2 = c$ (B) $x^2 + y^2 = c$
 (C) $x^2 = cy$ (D) $y^2 = cx$
12. The area bounded by $y^2 = x$, x -axis and the line $x = -1$ & $x = 2$ is
- (A) 2 square units (B) 3 square units
 (C) 4 square units (D) 5 square units
13. $\int e^x (\tan x + \sec^2 x) dx = \dots\dots\dots$
- (A) $e^x \tan x + c$ (B) $\tan x + c$
 (C) $e^x \sec^2 x + c$ (D) $\sec^2 x + c$

14. $\int \frac{dx}{\sqrt{x^2 + 2x + 10}} = \text{-----}$
 (A) $\sinh^{-1}\left(\frac{x+1}{3}\right) + c$ (B) $\sin\left(\frac{x+1}{3}\right) + c$
 (C) $\sinh^{-1}\left(\frac{x-1}{3}\right) + c$ (D) None
15. $\int \sqrt{(1 + \sin 2x)} dx = \text{-----}$
 (A) $\sin x + \cos x + c$ (B) $\sin x - \cos x + c$
 (C) $-\sin x + \cos x + c$ (D) $-\sin x - \cos x + c$
16. The radius of the circle $3x^2 + 3y^2 - 6x + 4y - 4 = 0$ is -----
 (A) $\frac{4}{3}$ (B) $\frac{1}{3}$
 (C) $\frac{2}{3}$ (D) $\frac{5}{3}$
17. The number of subsets of a set containing 'n' elements is -----
 (A) n (B) $2n$
 (C) 2^n (D) n^2
18. If $f(x) = 7 - 4x$, then $f(x - 2) = \text{.....}$
 (A) $15 - 4x$ (B) $1 - 4x$
 (C) $5 - 4x$ (D) $1 - 2x$
19. The domain of the function $f(x) = \frac{1}{x-1}$
 (A) $R - \{1\}$ (B) $\{1\}$
 (C) $R - \{0\}$ (D) R

20. If $f : R \rightarrow R$ defined by $f(x) = 3x - 4$ is invertible then $f^{-1}(x) = \dots$
- (A) $\frac{x-4}{3}$ (B) $\frac{x+4}{3}$
 (C) $\frac{x-3}{4}$ (D) None
21. If $\sin \theta + \cos \theta = 1$ then $\sin \theta \cdot \cos \theta = \dots$
- (A) 0 (B) 1
 (C) $\frac{1}{2}$ (D) -1
22. If $\tan A = \frac{1}{2}$, $\tan B = \frac{1}{3}$ then the value of $A + B = \dots$
- (A) 30° (B) 45°
 (C) 60° (D) 90°
23. If in a G.P $a_3 + a_5 = 90$ and $r = 2$ then the first term of the G.P = $\dots$
- (A) $\frac{9}{2}$ (B) $\frac{9}{4}$
 (C) $\frac{9}{3}$ (D) $\frac{9}{5}$
24. Which term of the sequence is 3, 10, 17, is 136
- (A) 18 (B) 19
 (C) 20 (D) 21
25. Equation of the line passing through the point (2, -3) and parallel to y-axis is
- (A) $y = -3$ (B) $y = 3$
 (C) $x = 2$ (D) $x = -2$
26. The distance between the parallel line $3x - 4y + 7 = 0$, $3x - 4y + 5 = 0$ is
- (A) $\frac{2}{3}$ (B) $\frac{2}{5}$
 (C) $\frac{1}{5}$ (D) None

27. The point (6, 2) liethe circle $x^2 + y^2 - 2x - 4y - 36 = 0$
 (A) Inside (B) Outside
 (C) On the (D) None
28. The eccentricity of parabola is-----
 (A) 0 (B) 1
 (C) <1 (D) >1
29. Length of latus rectum of hyperbola $16x^2 - 9y^2 = 144$ is-----
 (A) $32/3$ (B) $31/5$
 (C) $31/3$ (D) None
30. If the centroid of the triangle ABC with vertices A (2a, 14, 6), B (8, 3b, -10), C(-4, 2, 2c) is (0, 0, 0) then
 (A) $a = 2, c = 2$ (B) $a = -2, c = 2$
 (C) $a = 1/2, c = 1/2$ (D) None
31. Equation of circle with center (-3,2) and radius 4 is -----
 (A) $(x-3)^2 + (y+2)^2 = 16$ (B) $(x+3)^2 + (y-2)^2 = 16$
 (C) $(x+3)^2 + (y+2)^2 = 16$ (D) $(x-3)^2 + (y-2)^2 = 16$
32. $\lim_{x \rightarrow 0} \frac{\sin 5x}{3x} = \dots$
 (A) 1 (B) 2
 (C) $5/3$ (D) 0
33. If $ax^2 + 2hxy + by^2 = 3$ then $\frac{dy}{dx} =$
 (A) $\frac{(ax + hy)}{(hx + by)}$ (B) $\frac{-(ay + hx)}{(hy + bx)}$
 (C) $\frac{(ay + hx)}{(hy + bx)}$ (D) $\frac{-(ax + hy)}{(hx + by)}$

34. If $\begin{vmatrix} 3 & x \\ 2 & x^2 \end{vmatrix} = \begin{vmatrix} 5 & 3 \\ 3 & 2 \end{vmatrix}$ then $x = \dots$
- (A) $1, \frac{1}{3}$ (B) $-1, -\frac{1}{3}$
 (C) $-1, \frac{1}{3}$ (D) $1, -\frac{1}{3}$
35. If $A = \begin{bmatrix} 3 & x-1 \\ 2x+3 & x+2 \end{bmatrix}$ is a symmetric matrix then $x = \dots$
- (A) 4 (B) 3
 (C) -4 (D) -3
36. Angle between the vectors $\vec{i} - \vec{j}$ & $\vec{j} + \vec{k}$ is-----
- (A) $\frac{\pi}{3}$ (B) $\frac{2\pi}{3}$
 (C) $-\frac{\pi}{3}$ (D) None
37. Two vectors $\vec{i} - 6\vec{j} + \vec{k}$ & $2\vec{i} - 12\vec{j} + \lambda\vec{k}$ are parallel then $\lambda = \dots$
- (A) $\frac{1}{2}$ (B) $\frac{2}{3}$
 (C) 1 (D) 2
38. If the vectors $2\vec{i} + \lambda\vec{j} - \vec{k}$ & $4\vec{i} - 2\vec{j} + 2\vec{k}$ are perpendicular to each other then $\lambda = \dots$
- (A) 1 (B) 2
 (C) 3 (D) 4
39. If the curve $ay + x^2 = 7$, $x^3 = y$ cuts orthogonally at (1, 1) then the value of $a = \dots$
- (A) -6 (B) 6
 (C) -1 (D) 1

40. If $e^{x+y} = xy$ then $\frac{dy}{dx} = \dots$

(A) $\frac{x(1+y)}{y(x+1)}$

(B) $\frac{(x-xy)}{(xy-y)}$

(C) $\frac{y(1-x)}{x(y-1)}$

(D) None

41. If $f : R \rightarrow R$ given by $f(x) = (5 - x^3)^{\frac{1}{3}}$ then $f \circ f(x) = \dots$

(A) x

(B) $5 - x^3$

(C) x^3

(D) None

42. If $x = a \sin pt$, $y = b \cos pt$ then $\frac{d^2y}{dx^2}$ at $t = 0$ is

(A) $\frac{a}{b^2}$

(B) $-\frac{a}{b^2}$

(C) $\frac{b}{a^2}$

(D) $-\frac{b}{a^2}$

43. The Maximum value of $x^2 - x + 1$ is

(A) 1

(B) $\frac{3}{4}$

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

(D) None

44. Eccentricity of hyperbola $\frac{x^2}{16} - \frac{y^2}{9} = 1$ is

(A) $\frac{3}{4}$

(B) $\frac{1}{4}$

(C) $\frac{5}{4}$

(D) $\frac{1}{6}$

45. $\int x^2 e^{x^3} dx = \dots$

(A) $\frac{1}{3} e^{x^3} + c$

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

(C) $\frac{1}{4} e^{x^4} + c$

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

46. $\int (2+x)x\sqrt{x} dx = \dots$

(A) $\frac{4x^{5/2}}{5} + \frac{2x^{7/2}}{9} + c$

(B) $\frac{4x^{5/2}}{5} - \frac{2x^{7/2}}{7} + c$

(C) $\frac{4x^{5/2}}{5} + \frac{2x^{7/2}}{7} + c$

(D) $-\frac{4x^{5/2}}{5} + \frac{2x^{7/2}}{7} + c$

47. If A & B are two events such that $P(A/B) = 2.(B/A)$ and

$P(A) + P(B) = \frac{2}{3}$ then $P(B) = \dots\dots$

(A) $\frac{2}{9}$

(B) $\frac{7}{9}$

(C) $\frac{4}{9}$

(D) $\frac{5}{9}$

48. If $\tan^{-1}(\sqrt{3}) + \cot^{-1}(x) = \frac{\pi}{2}$ then $x = \dots\dots$

(A) 0

(B) 1

(C) $\sqrt{3}$

(D) -1

49. The length of tangent from (1, 3) to the circle

$2x^2 + 2y^2 - 4x + 8y - 22 = 0$ is

(A) 3

(B) $3\sqrt{3}$

(C) $\sqrt{18}$

(D) $3\sqrt{2}$

50. In a Binomial distribution if mean $=15/2$, variance $=15/4$ then $p=.....$

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

(B) $\frac{1}{6}$

(C) $\frac{1}{4}$

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

PHYSICS

51. The unit of Thermal Conductivity is:

(A) $Wm^{-1}k^{-1}$

(B) Jmk^{-1}

(C) $Jm^{-1}k^{-1}$

(D) Wmk^{-1}

52. A vehicle travels half the distance with speed v and remaining distance with speed $2v$. its average speed is:

(A) $\frac{3v}{4}$

(B) $\frac{v}{3}$

(C) $\frac{2v}{3}$

(D) $\frac{4v}{3}$

53. A particle moving with uniform speed in a circular path maintains:

(A) Constant velocity but varying acceleration

(B) Varying velocity and varying acceleration

(C) Constant velocity

(D) Constant acceleration

54. A particle is displaced through $3\hat{i} + 4\hat{j}$ by a force $2\hat{i}N$. The work done is:

(A) 10J

(B) 14J

(C) 8J

(D) 6J

55. The escape velocity for earth is v . a planet having 9 times mass that of earth and radius 16 times that of earth, has the escape velocity of:

- (A) $\frac{v}{3}$ (B) $\frac{2v}{3}$
(C) $\frac{3v}{4}$ (D) $\frac{9v}{4}$

56. If a soap bubble expands, the pressure inside the bubble.

- (A) decreases
(B) increases
(C) remains the same
(D) is equal to the atmospheric pressure

57. The energy that will be ideally radiated by a 100 kw transmitter in 1 hour is:

- (A) $36 \times 10^7 J$ (B) $36 \times 10^4 J$
(C) $36 \times 10^5 J$ (D) $1 \times 10^5 J$

58. In which of the following processes, heat is neither absorbed nor released by a system?

- (A) Isochronic (B) Isobaric
(C) adiabatic (D) isothermal

59. During simple harmonic motion of a body, the energy at the extreme position is:

- (A) Always zero (B) purely kinetic
(C) purely potential (D) both kinetic and potential

60. According to Gauss Law of electrostatics, electric flux through a closed surface depends on:

- (A) The area of the surface
- (B) The quantity of charges enclosed by the surface
- (C) The shape of the surface
- (D) The volume enclosed by the surface

61. The value of electric potential at a distance of 9 cm from the point charge

$4 \times 10^{-7} C$ is (Given $\frac{1}{4\pi\epsilon_0} = 9 \times 10^9 Nm^2C^{-2}$)

- (A) $4 \times 10^2 V$
- (B) $44 \cdot 4 V$
- (C) $4 \cdot 4 \times 10^5 V$
- (D) $4 \times 10^4 V$

62. The reciprocal of resistance is:

- (A) reactance
- (B) mobility
- (C) conductivity
- (D) conductance

63. Which of the following acts as a circuit protection device?

- (A) fuse
- (B) conductor
- (C) inductor
- (D) switch

64. The shape of the magnetic field lines due to an infinite long, straight current carrying conductor.

- (A) a straight line
- (B) circular
- (C) elliptical
- (D) a plane

65. The length of a magnetized iron bar is L and its magnetic moments is M . when this bar is bent to form a semicircle, its magnetic movent is:

- (A) $\frac{2M}{\pi}$ (B) M
(C) $\frac{M\pi}{2}$ (D) $\frac{M}{2\pi}$

66. The net magnetic flux through any closed surface is:

- (A) Negative (B) Zero
(C) Positive (D) infinity

67. In which of the following devices is the eddy current effect not used?

- (A) Electric heater (B) Induction furnace
(C) magnetic braking in train (D) electromagnet

68. The E.M. Wave with shortest wavelength among the following is:

- (A) x-rays (B) Gamma-rays
(C) microwaves (D) ultraviolet rays

69. Which colour of the light has the longest wave length?

- (A) Violet (B) Red
(C) Blue (D) Green

70. In total internal reflection, when the angle of incidence is equal to the critical angle for the pair of media in contact, what will be angle of refraction?

- (A) 90° (B) 180°
(C) zero (D) equal to angle of incidence

71. Time taken by sunlight to pass through a glass slab of thickness 5 mm and refractive index 1.5:

- (A) $\left(\frac{5}{2}\right) \times 10^{-8} S$ (B) $\left[\frac{5}{3}\right] \times 10^{-8} S$
 (C) $\frac{5}{2} \times 10^{-11} S$ (D) $\left[\frac{5}{3}\right] \times 10^{-11} S$

72. Water is used as a coolant in a nuclear reactor because of its:

- (A) High thermal expansion coefficient
 (B) High specific heat capacity
 (C) low density
 (D) low boiling point

73. A.P-type extrinsic semiconductor is obtained when Germanium is doped with:

- (A) Antimony (B) Phosphorous
 (C) Arsenic (D) Boron

74. Which one of the following represents forward bias diode?

- (A)  (B) 
 (C)  (D) 

75. The increase in the width of the depletion region in a p-n junction diode is due to:

- (A) forward bias (B) reverse bias
 (C) both forward and reverse (D) increase in forward current

CHEMISTRY

76. The most abundant element in the Earth's crust is?

- | | |
|--------------------|--------------|
| (A) Oxygen | (B) Hydrogen |
| (C) Carbon Dioxide | (D) Silicon |

77. The shape of NH_3 molecule is?

- | | |
|---------------------|------------------------|
| (A) Tetrahedral | (B) Pyramidal |
| (C) Trigonal planar | (D) Trigonal Pyramidal |

78. Weight of NaOH required to react completely with 0.1 equivalent of H_2SO_4 is?

- | | |
|---------|-----------|
| (A) 2 g | (B) 2.5 g |
| (C) 3 g | (D) 4 g |

79. Among the following have most stable electronic configuration is?

- | | |
|----------------------|---------------------|
| (A) Fe^{2+} | (B) V^{2+} |
| (C) Fe^{3+} | (D) Fe^+ |

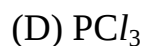
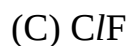
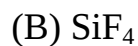
80. Which of the following has maximum electronegativity?

- | | |
|--------|-------|
| (A) Li | (B) O |
| (C) N | (D) F |

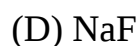
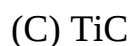
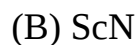
81. The element with atomic number 57 belongs to?

- | | |
|-------------|-------------|
| (A) s-Block | (B) p-Block |
| (C) d-Block | (D) f-Block |

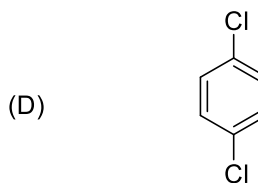
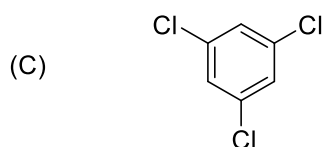
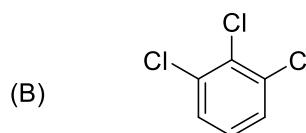
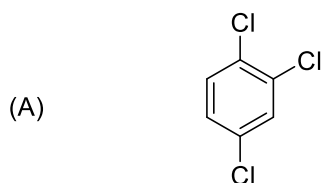
82. Which has zero dipole moment?



83. Choose the compound having highest melting point?



84. Which has maximum dipole moment?



85. If we increase the temperature, then the pH value of pure water

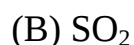
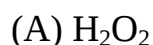
(A) Increases

(B) Decreases

(C) Remains same

(D) Increases and then decreases

86. Which of the following can act as both oxidizing as well as reducing agent?



(D) All of these

87. Strongest oxidizing agent is

- (A) KMnO_4 (B) F_2
(C) $\text{K}_2\text{Cr}_2\text{O}_7$ (D) Cl_2

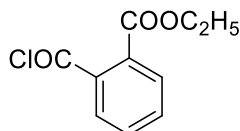
88. Which of the following aluminium halide is most covalent?

- (A) Aluminium fluoride (B) Aluminium chloride
(C) Aluminium bromide (D) Aluminium iodide

89. The carboxylic acid reacts with amines to form

- (A) Amide (B) Nitrile
(C) Ester (D) Anhydride

90. The IUPAC name of following compound is?



- (A) ethyl-2-(Chlorocarbonyl) benzoate
(B) ethyl-2-(Chlorocarbonyl) hexanote
(C) ethyl-2-(Chlorocarbonyl) benzoyl chloride
(D) ethyl benzoyl benzoate

91. The solubility of which of the following substances will decrease with increase of temperature?

- (A) Calcite (B) Na_2CO_3
(C) Na_2SO_4 (D) All of these

92. Which of the following solution has maximum boiling point?

- (A) 0.1 M KNO_3 (B) 0.01 M CH_3COOH
(C) 0.5 M Urea (D) 0.2 M $\text{K}_4[\text{Fe}(\text{CN})_6]$

93. The highest electrical conductivity among the following aqueous solution (0.1M) is of?

- (A) HCl (B) LiCl
(C) NaCl (D) KCl

94. Which one of the following noble gases is not found in atmosphere?

- (A) Rn (B) Kr
(C) Ne (D) Ar

95. A water drop is spherical in shape due to?

- (A) Viscosity (B) Surface tension
(C) Reflection (D) Poise

96. Ammonium dichromate on heating gives?

- (A) Chromic acid and ammonia
(B) Chromium sesquioxide and nitrogen
(C) Chromium sesquioxide and ammonia
(D) Chromic acid and nitrogen

97. From the given compounds, which one is not organo-metallic?

- (A) Haemoglobin (B) Vitamin-A
(C) Vitamin- B_{12} (D) Chlorophyll

98. Which of the following is nitrating mixture?

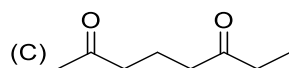
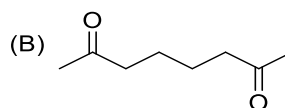
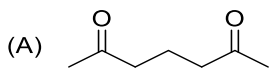
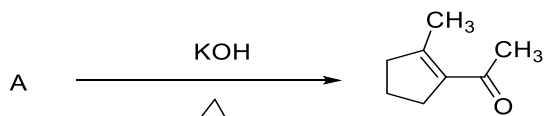
(A) $\text{HCl} / \text{H}_2\text{SO}_4$

(B) $\text{HNO}_3 / \text{H}_2\text{SO}_4$

(C) H_2 / PT

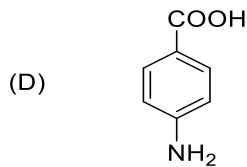
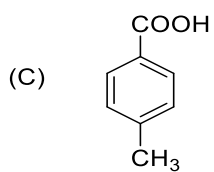
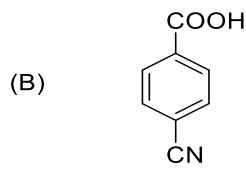
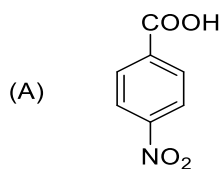
(D) All of the Above

99. Compound A in the following reaction



(D) None of These

100. Select the most acidic compound from the following



ROUGH WORK

ROUGH WORK

ROUGH WORK

ROUGH WORK

ROUGH WORK