

Question Booklet Series: **A**

Question Booklet Serial No.: **410087**

PUMEET – 2024

Important: Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No.

(In Figure)

(In Words)

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O.M.R. Answer Sheet Serial No.

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Signature of Candidate: _____

Signature of Invigilator: _____

Time: 100 Minutes

Number of Questions: 100

Maximum Marks: 100

DO NOT OPEN THE SEAL ON THE BOOKLET UNTIL ASKED TO DO SO.

INSTRUCTIONS:

1. Write your Roll No. on the Questions Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Question Booklet Serial No. on the OMR Answer Sheet. Darken the corresponding bubbles with **Black Gel Pen**.
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. Please check that this Question Booklet contains **100** Questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of Test.
5. Each question has four alternative answer (A,B,C,D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Gel Pen**. **There shall be negative marking for wrong answer, $\frac{1}{4}$ of the marks of the question will be deducted for every wrong answer.**
6. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Booklet. No marks will be deducted in such cases.
7. The mediums of examination shall be English only.
8. **35 minutes extra would be given to the Persons with Disability (PwD).**
9. **Darken** the bubbles in the OMR Answer Sheet according to the Serial No. of the question given in the Question Booklet.
10. If you want to change an already marked answer, erase the shade in the darkened bubble completely.
11. For rough work only the blank sheet at the end of the Question Booklet be used.
12. The University will provide Logarithmic table. Borrowing of log table or other material is not allowed.
13. The Answer Sheet is designed for computer evaluation. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e. not following the instructions completely, shall be of the candidate only.**
14. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
15. In no case the Answer Sheet, the Question Booklet, or its part or any material copied/noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so would be expelled from the examination.
16. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
17. **Communication equipment such as pager, cellular phone, wireless set, scanner, camera or any electronic/digital gadget etc., is not permitted inside the examination hall. Use of calculators is not allowed.**
18. The candidates will not be allowed to leave the Examination Hall/Room before the expiry of the allotted time.

1. The interval of convergence of a series $\sum_{n=1}^{\infty} \frac{x^n}{n \cdot 3^n}$ is
 (A) $[-3, 3]$ (B) $[-3, 3)$ (C) $(-\infty, \infty)$ (D) $[-3, \infty)$
2. The series $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n}$ is
 (A) Oscillatory (B) Absolutely convergent
 (C) Conditionally convergent (D) Divergent
3. The Taylor series for the function $f(x) = 7x^2 - 6x + 1$ about $x = 2$ is given by $a + b(x-2) + c(x-2)^2$. The value of $a + b + c$ is
 (A) -1 (B) 0 (C) 17 (D) 46
4. Let $f(x, y) = \sin(xy) + x^2 \ln(y)$. Then f_{yx} at $(0, \frac{\pi}{2})$ is
 (A) 33 (B) 0 (C) 3 (D) 1
5. If $x + y + z = u$, $y + z = uv$, $z = uvw$, then $\frac{\partial(x, y, z)}{\partial(u, v, w)}$ is
 (A) uv (B) $u^2 v$ (C) uv^2 (D) $u + v$
6. For a homogeneous function with no saddle points, one must have the minimum value as
 (A) zero (B) 90 (C) 1 (D) equal to degree
7. The minimum value of $x^2 + y^2 + z^2$, given $x + y + z = 3a$ is
 (A) a^2 (B) $3a$ (C) a (D) $3a^2$
8. The directional derivative of $f(x, y, z) = xyz + yz + zx$ in the direction of a vector: $\hat{i} + 2\hat{j} + 2\hat{k}$ at points $(1, 2, 0)$ is
 (A) $\frac{3}{10}$ (B) $\frac{10}{3}$ (C) $\frac{1}{3}$ (D) $\frac{1}{10}$
9. If $\vec{f} = (x + 3y)\hat{i} + (y - 2z)\hat{j} + (x + pz)\hat{k}$ is solenoidal, then p is
 (A) 2 (B) -2 (C) 3 (D) -3
10. A force-field $\vec{F}$ is said to be conservative if
 (A) $\text{curl } \vec{F} = 0$ (B) $\text{grad } \vec{F} = 0$ (C) $\text{div } \vec{F} = 0$ (D) $\text{curl}(\text{grad } \vec{F}) = 0$
11. If all the surfaces are closed in a region containing volume V , then which of the following theorem is applicable?
 (A) Stoke's theorem (B) Green's theorem
 (C) Gauss divergence theorem (D) Both Stoke's and Green's theorems
12. The arc of a parabola $y^2 = 4x$ between $x = \frac{1}{2}$ and $x = 1$ is rotated about the x -axis. The area of the surface generated is
 (A) $\pi \left[\frac{16\sqrt{2}}{3} \right]$ (B) $\pi \left[\frac{16\sqrt{2}}{3} - 2\sqrt{6} \right]$
 (C) $\pi \left[\frac{16\sqrt{2}}{3} + 2\sqrt{6} \right]$ (D) $\left[\frac{16\sqrt{2}}{3} + 2\sqrt{6} \right]$

13. Changing the order of integration of the double integral $\int_0^{4a} \int_{\frac{x^2}{4a}}^{2\sqrt{ax}} dy dx$ leads to $\int_p^q \int_r^s dx dy$. What is the value of $(q \times s)$?
- (A) 0 (B) y^2 (C) $\frac{y^2}{2} \sqrt{\frac{y}{a}}$ (D) $8a \sqrt{ay}$
14. The volume of a tetrahedron bounded by the planes $x + 2y + z = 2$, $x = 2y$, $x = 0$ and $z = 0$ is
- (A) $\frac{1}{2}$ (B) $\frac{1}{3}$ (C) $\frac{1}{4}$ (D) $\frac{1}{6}$
15. The solution of $(\cos x - x \cos y) dy - (\sin y + y \sin x) dx = 0$ is
- (A) $\cos x - \sin y = c$ (B) $y \cos x - x \sin y = c$
 (C) $x \cos x - y \sin y = c$ (D) $\cos x + \sin y = c$
16. The orthogonal trajectory of the one parameter family of curves $e^x + e^{-y} = c$ is
- (A) $-e^{-x} + e^y = c$ (B) $e^x + e^{-y} = c$
 (C) $e^{-x} + e^{-y} = c$ (D) $e^x - x e^{-y} = c$
17. The solution of IVP: $\frac{d^2y}{dx^2} + 6 \frac{dy}{dx} + 9y = 0$; $y(0) = -4$, $\frac{dy}{dx}(0) = 14$ is
- (A) $y(x) = (2x - 4)e^{-2x}$ (B) $y(x) = (2x + 4)e^{-2x}$
 (C) $y(x) = (2x - 4)e^{-3x}$ (D) $y(x) = (2x + 4)e^{-3x}$
18. The particular integral of the differential equation: $(D^2 + 4)y = \sinh 2x + 7$ is
- (A) $\sinh 2x - \frac{7}{4}$ (B) $\frac{1}{8} \cosh 2x - \frac{7}{4}$ (C) $\frac{1}{8} \sinh 2x + \frac{7}{4}$ (D) $\frac{1}{8} \cosh 2x + \frac{7}{4}$
19. The Fourier coefficient b_n for $f(x) = e^x$ in $(0, 2\pi)$ is given by
- (A) 0 (B) $\frac{n}{\pi(1+n^2)}$ (C) $\frac{n}{\pi(1+n^2)}(1 + e^{2\pi})$ (D) $\frac{n}{\pi(1+n^2)}(1 - e^{2\pi})$
20. The half-range Fourier sine series for $f(x) = x$ in $0 < x < 2$ is given by
- (A) $f(x) = \frac{\pi}{4} \sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n} \sin \frac{n\pi x}{2}$ (B) $f(x) = \frac{4}{\pi} \sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n} \sin nx$
 (C) $f(x) = \frac{4}{\pi} \sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n} \cos \frac{n\pi x}{2}$ (D) $f(x) = \frac{4}{\pi} \sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n} \sin \frac{n\pi x}{2}$
21. At $x = 0$, the Fourier series of $f(x) = \begin{cases} 0, & -\pi < x < 0 \\ \pi - x, & 0 < x < \pi \end{cases}$ converges to
- (A) $\frac{1}{2}$ (B) 0 (C) $\frac{\pi}{2}$ (D) $\frac{\pi}{8}$
22. The partial differential equation obtained by eliminating the arbitrary constants from $z = ax^3 + by^3$ is
- (A) $3z = px + qy$ (B) $3z = px - qy$ (C) $3z = py + qx$ (D) $3z = py - qx$
23. The partial differential equation obtained by eliminating arbitrary function from $xyz = f(x + y + z)$ is
- (A) $x(y - z)p = y(z - x)q$ (B) $x(y + z)p = y(z + x)q$
 (C) $x(y - z)p - y(z - x)q = z(x - y)$ (D) $x(y - z)p + y(z - x)q = z(x - y)$
24. The solution of a partial differential equation $xp - yq = y^2 - x^2$ is
- (A) $\phi(x + y, x^2 + y^2 + 2z) = 0$ (B) $\phi(xy, x^2 - y^2 + 2z) = 0$
 (C) $\phi(x - y, x^2 + y^2 + 2z) = 0$ (D) $\phi(xy, x^2 + y^2 + 2z) = 0$

25. Which of the following statements about the D'Alembert method is true?
 (A) it provides the use of characteristic curves to find the solution
 (B) It requires the use of Fourier series
 (C) it provides a systematic approach to solving nonlinear wave equations
 (D) it represents the superposition of two travelling waves with opposite velocities
26. What boundary conditions are typically used when solving PDEs with the method of variable separable for problems defined on a finite domain?
 (A) Neumann boundary conditions (B) Periodic boundary conditions
 (C) Dirichlet boundary conditions (D) Mixed boundary conditions
27. The Laplace transform of a function $f(t)$ exists if
 (A) it is uniformly continuous
 (B) it is piece-wise continuous
 (C) it is uniformly continuous and of exponential order
 (D) it is piece-wise continuous and of exponential order
28. The Laplace transform of $f(t) = t e^{-t} \sin 3t$ is
 (A) $\frac{s-1}{(s^2-2s+10)^2}$ (B) $\frac{s+1}{(s^2-2s+10)^2}$ (C) $\frac{6(s+1)}{(s^2+2s+10)^2}$ (D) $\frac{6(s-1)}{(s^2+2s-10)^2}$
29. The inverse Laplace $L^{-1}\left\{\frac{3s+7}{s^2-2s-3}\right\}$ is given by
 (A) $4e^{-3t} - e^{-t}$ (B) $4e^{3t} - e^{-t}$ (C) $4e^{-3t} + e^{-t}$ (D) $e^{-3t} - e^{-t}$
30. The relation between unit step function and unit impulse function is given by
 (A) $L\{u(t-a)\} = L\{\delta(t)\}$ (B) $L\{u(t)\} = L\{\delta'(t)\}$
 (C) $L\{u'(t-a)\} = L\{\delta(t-a)\}$ (D) $L\{u'(t)\} = L\{\delta'(t-a)\}$
31. The differential equation of the S. H. M. is given by

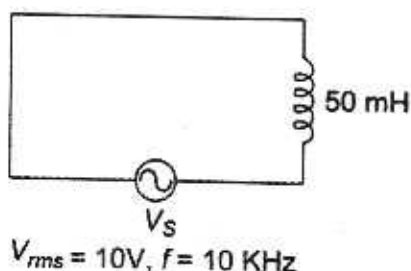
$$\frac{d^2y}{dt^2} + 100y = 0$$

 The frequency of the motion is:
 (A) 1.59 Hz (B) 10 Hz (C) 1.2 Hz (D) 3.2 Hz
32. The ratio of maximum acceleration to the maximum velocity of a particle executing S.H.M. is:
 (A) $1/w$ (B) $A w$ (C) w (D) w^2
33. In a damped oscillation, the amplitude of oscillation is reduced to one-third of its initial value A_0 at the end of 100 oscillations. When oscillator completes 200 oscillations, its amplitude becomes
 (A) $\frac{A_0}{9}$ (B) $\frac{A_0}{4}$ (C) $\frac{A_0}{2}$ (D) $\frac{A_0}{18}$
34. For a particle executing S.H.M. the phase difference between velocity and displacement is
 (A) $\frac{\pi}{4}$ (B) $\frac{\pi}{2}$ (C) $\frac{\pi}{6}$ (D) $\frac{\pi}{3}$
35. In Newton's rings arrangement the diameter of rings formed is proportional to
 (A) λ (B) $2/\sqrt{\lambda}$ (C) $\sqrt{\lambda}$ (D) $1/\sqrt{\lambda}$

36. Which one of the following does not support the wave nature of light
 (A) Diffraction (B) Polarization (C) Interference (D) Photoelectric effect
37. When unpolarized light enters a doubly refracting crystal, we get two refracted rays called ordinary ray (O-ray) and extraordinary ray (E-ray). Which one of the following statements is true?
 (A) only O-ray is polarized (B) only E-ray is polarized
 (C) both O-ray and E-ray are polarized (D) neither O-ray nor E-ray are polarized
38. The lifetime of meta-stable state in a Ruby laser is _____
 (A) 10^{-3} s (B) 10^{-8} s (C) 10^{-2} s (D) 10^{-5} s
39. The rest mass of an electron is m_0 . when it moves with a velocity of $0.6c$, then its mass is
 (A) m_0 (B) $\frac{5}{4}m_0$ (C) $\frac{3}{4}m_0$ (D) $2m_0$
40. A metal block of density ρ is moving with velocity $0.8c$. Its density (compared to ρ) will.....
 (A) increase (B) decrease
 (C) remains constant (D) depend the direction of motion
41. The energy that can be obtained from complete annihilation of 1 gm of mass in joules is
 (A) 1×10^{14} J (B) 1×10^{13} J (C) 9×10^{13} J (D) 9×10^{14} J
42. An observer moves towards source a stationary of light with a speed $0.5c$, the speed of light appears to the observer to be:
 (A) c (B) $\frac{3}{2}c$ (C) $\frac{3}{4}c$ (D) $2c$
43. The uncertainty in velocity of electron orbiting around the nucleus of radius r is
 (A) $\frac{h}{2\pi mr}$ (B) $\frac{h}{2mr}$ (C) $\frac{h}{4\pi mr}$ (D) $\frac{h}{4mr}$
44. The expectation value $\langle x \rangle$ of position of a particle trapped in a box L wide is
 (A) L (B) $L/2$ (C) $L/4$ (D) $2L$
45. If electron is accelerated through 25 volts de-Broglie wave length of an electron is
 (A) $2.45 \text{ \AA}$ (B) $0.49 \text{ \AA}$ (C) $24.5 \text{ \AA}$ (D) $0.24 \text{ \AA}$
46. Which one of the following is quantum mechanical momentum operator?
 (A) $\frac{\hbar^2}{2m} \nabla^2$ (B) $-i\hbar \nabla$ (C) $-\frac{\hbar^2}{2m} \nabla^2$ (D) $i\hbar \nabla$
47. Which of the following elements is a covalently bonded crystal?
 (A) Germanium (B) Aluminium (C) Lead (D) Sodium chloride
48. The atomic packing fraction for diamond cubic structure is
 (A) 0.74 (B) 0.34 (C) 0.54 (D) 0.68
49. In FCC unit cell there are
 (A) 4 tetrahedral and 8 octahedral voids (B) 8 tetrahedral and 4 octahedral voids
 (C) 8 tetrahedral and 8 octahedral voids (D) 4 tetrahedral and 4 octahedral voids
50. If X-ray of wavelength $100 \text{ \AA}$ is incident on an atom at an angle of 90° , then what should be the value of d for first-order spectrum?
 (A) $100 \text{ \AA}$ (B) $30 \text{ \AA}$ (C) $50 \text{ \AA}$ (D) $10 \text{ \AA}$

51. Which one of the following is paramagnetic and has bond order $1/2$?
 (A) H_2 (B) H_2^+ (C) N_2 (D) F_2
52. If N_b is the number of electrons occupying bonding orbitals and N_a is the number of electrons occupying anti-bonding orbitals, then
 (A) the molecule is stable if N_b is greater than N_a
 (B) the molecule is unstable if N_b is greater than N_a
 (C) the molecule is unstable if N_a is greater than N_b
 (D) the molecule is stable if N_a is greater than N_b
53. Fluorine molecule is formed by
 (A) the axial s-p overlap (B) the sidewise p-p overlap
 (C) the axial p-p overlap (D) the overlap of two sp^2 hybrid orbitals
54. The efficiency of a heat engine is maximum when
 (A) temperature of source is greater than sink
 (B) temperature of sink is greater than source
 (C) temperature difference of source and sink is minimum
 (D) temperature difference of source and sink is maximum
55. For a reversible reaction at temperature T , which of the following is correct?
 (A) $T = \Delta H/\Delta S$ (B) $T = \Delta S/\Delta H$ (C) $T > \Delta H/\Delta S$ (D) $T < \Delta H/\Delta S$
56. The exact relationship between pressure and volume in a reversible adiabatic expansion is
 (A) $PV = \text{constant}$ (B) $PV^\gamma = \text{constant}$ (C) $PV^{\gamma-1} = \text{constant}$ (D) $PV^{1-\gamma} = \text{constant}$
57. A binary solid (A^+B^-) has a zinc blende structure with B^- ions constituting the lattice and A^+ ions occupying 25% tetrahedral holes. The formula of the solid is
 (A) AB_2 (B) AB (C) A_2B (D) AB_4
58. The total number of atoms required to form a unit cell of *bcc* lattice will be
 (A) 6 (B) 8 (C) 9 (D) 12
59. The vapour pressure lowering of a solvent is proportional to
 (A) the mole fraction of the solvent (B) the mole fraction of the solute
 (C) the molality of the solvent (D) the normality of the solution
60. The osmotic pressure of a solution is given by the relation
 (A) $\pi = RT/C$ (B) $\pi = CT/R$ (C) $\pi = RC/T$ (D) $\pi/C = RT$
61. The corrosion caused by the direct chemical action of environmental gases or anhydrous liquids on the metal surfaces is called
 (A) dry corrosion (B) wet corrosion
 (C) pitting corrosion (D) electrochemical corrosion
62. Chemically, the formula of rust is
 (A) Fe_2O_3 (B) $FeO \cdot Fe_2O_3$ (C) $Fe_2O_3 \cdot xH_2O$ (D) $FeO \cdot xH_2O$
63. The catalyst used in the preparation of polythene by Zeigler method is
 (A) titanium tetrachloride and triphenyl aluminium
 (B) titanium tetrachloride and triethyl aluminium
 (C) titanium dioxide
 (D) titanium isopropoxide

64. Bakelite polymer is obtained from phenol by reaction with
 (A) acetaldehyde (B) acetic acid (C) formic acid (D) formaldehyde
65. PVC is an example of
 (A) thermoset (B) thermoplast (C) elastic (D) fibre
66. Ozone depletion is due to the formation of which of the following compound(s)?
 (A) Acrolein (B) Peroxy acetyl nitrate
 (C) SO_2 and SO_3 (D) CO_2
67. Which of the following metal is not a pollutant?
 (A) Mercury (B) Arsenic (C) Lead (D) Aluminium
68. In an octahedral crystal field, t_{2g} orbitals are
 (A) raised in energy by $0.4 \Delta_o$ (B) lowered in energy by $0.4 \Delta_o$
 (C) raised in energy by $0.6 \Delta_o$ (D) lowered in energy by $0.6 \Delta_o$
69. If $\Delta_o < P$, the correct electronic configuration for d^4 octahedral system will be
 (A) $t_{2g}^4 e_g^0$ (B) $t_{2g}^3 e_g^1$ (C) $t_{2g}^0 e_g^4$ (D) $t_{2g}^2 e_g^2$
70. The correct relationship between crystal field splitting of octahedral (Δ_o) and tetrahedral (Δ_t) field is
 (A) $\Delta_o = 4/9 \Delta_t$ (B) $\Delta_t = 4/9 \Delta_o$ (C) $\Delta_o = 2/3 \Delta_t$ (D) $\Delta_t = 2/3 \Delta_o$
71. The rms value of the current flowing in the circuit given in fig. 1.



- (A) 10.18 mA (B) 3.18 mA (C) 6.36 mA (D) 0 A
72. In a three-phase balanced delta connected system, the phase relation between the line currents and their respective phase currents is given by
 (A) The line currents lag behind their respective phase currents by 30°
 (B) The phase currents lag behind their respective line currents by 30°
 (C) The line currents and their respective phase currents are in phase
 (D) Line currents are independent of line current in delta connected loads
73. Wattmeter deflection in ac circuit is proportional to the
 (A) Instantaneous and maximum power in the circuit
 (B) Instantaneous power in the circuit
 (C) Average power in the circuit
 (D) Maximum power in the circuit
74. A transformer has N_1 and N_2 turns in primary and secondary windings respectively. Its secondary-winding reactance $X_2 \Omega$ when referred to primary, is
 (A) $X_2 \left(\frac{N_2}{N_1}\right)^2$ (B) $X_2 \left(\frac{N_2}{N_1}\right)$ (C) $X_2 \left(\frac{N_1}{N_2}\right)^2$ (D) $X_2 \left(\frac{N_1}{N_2}\right)$

75. A 230-V dc series generator is driven at its rated speed. The no-load voltage across its armature terminals would be
 (A) Somewhat more than 230 V (B) Somewhat less than 230 V
 (C) 230 V (D) 6V
76. No-load current of a 3-phase IM in terms of its rated current is
 (A) 10 to 20% (B) 2 to 6% (C) 20 to 30% (D) 30 to 50%
77. A half-wave rectifier is used to supply 60 V D. C. to a resistive load of 600 Ω . If the diode resistance is 20 Ω , calculate A. C. voltage required approximately.
 (A) 1800 V (B) 200 V (C) 3 V (D) 195 V
78. In a common-base configuration, the emitter current is 0.9 mA. If the emitter circuit is open, the collector current is 45 μ A. Find the total collector current. Given that $\alpha = 0.9$.
 (A) 0.9 mA (B) 0.855 mA (C) 0.045 mA (D) 0.81 mA
79. The binary equivalent of A_{16} is
 (A) 1000 (B) 1011 (C) 1010 (D) 1110
80. In a RS flip-flop using NOR gates when $R = S = 0$, the output Q when the flip-flop is clocked is
 (A) 0 (B) 1 (C) Indeterminate (D) No change
81. For a mass-spring system undergoing Simple Harmonic Motion (SHM), what happens to the frequency of oscillation if the mass and the spring constant both are doubled?
 (A) The frequency doubles (B) The frequency halves
 (C) The frequency remains the same (D) The frequency becomes four times
82. Which of the following statements best describes the principle of conservation of energy?
 (A) Energy can be created or destroyed in any process
 (B) The total energy of an isolated system remains constant over time, regardless of internal changes
 (C) Energy can only be converted from one form to another with 100% efficiency
 (D) The amount of energy in a closed system decreases as work is done
83. Elastic limit refers to
 (A) The maximum stress a material can withstand before breaking
 (B) The point at which a material undergoes permanent deformation after stress is removed
 (C) The range of stress within which a material exhibits elastic behavior and returns to its original shape upon removal of the applied load
 (D) The ability of a material to resist indentation or scratching under applied force
84. What is the primary function of grinding in manufacturing processes?
 (A) To shape materials using compressive forces
 (B) To remove material from a workpiece to achieve desired dimensions and surface finish
 (C) To apply a protective coating to the surface of a workpiece
 (D) To join two materials together through fusion
85. What is the primary purpose of using section views in orthographic projection?
 (A) To provide a detailed view of the surface texture of an object
 (B) To display internal features that are obscured in the principal views
 (C) To create a three-dimensional representation of the object
 (D) To illustrate the object from multiple perspectives simultaneously

86. A solution of specific gravity 1.0 consists of 35% A by weight and the remaining B. If the specific gravity of A is 0.7, the specific gravity of B is
 (A) 1.25 (B) 1.3 (C) 1/4 (D) 1.2
87. A pressure of 1.0 torr is equal to
 (A) 1 m H₂O (B) 1 mm Hg (C) 1 N/m² (D) 1 Kg/cm²
88. For one mole of an ideal gas that is compressed isothermally from one to two atmospheres, the work required is equal to
 (A) $RT \ln 2$ (B) $RT \ln(1/2)$ (C) $2RT$ (D) RT
89. Vapour free gas means
 (A) 0 % humidity (B) 100 % humidity
 (C) 1% humidity (D) Between 0 and 100 % humidity
90. Overall order of reaction for which rate constant has units of (mol/L)^{1/2}sec¹ is
 (A) -3/2 (B) 1/2 (C) 3/2 (D) 5/2
91. All of the following statements are true about grapevine, except:
 (A) Grapevine is normal, often vital, part of every organization
 (B) Information moves rapid along grapevine
 (C) Grapevine is pervasive
 (D) Grapevine should be eliminated for good business
92. Which type of communication network has the highest potential of building team spirit and cohesive work unit:
 (A) Downward communication (B) Upward communication
 (C) Horizontal communication (D) Cross channel communication
93. The most frequent source of information on company plans and performance usually is
 (A) Informal communication (B) Upward communication
 (C) Cross channel communication (D) Horizontal communication
94. Which amongst the following is not a component of Non-verbal communication
 (A) Physical appearance (B) Time
 (C) Reading (D) Body language
95. All of the following are the components of body stance except
 (A) Posture (B) Distribution of body weight
 (C) Placement of arms and legs (D) Voice quality
96. With respect to space and territory in business communication, the social zone extends from:
 (A) 18 inches to four feet (B) Beyond twelve feet
 (C) Four feet to twelve feet (D) Physical contact to 18 inches
97. Gestures are used for all of the following except:
 (A) Illustrate your verbal message
 (B) Reinforce your verbal message
 (C) Confuse your verbal message
 (D) Add important information to face to face interaction

98. Which of the following statement is true:
(A) The non verbal message is often more spontaneous and meaningful than the verbal message
(B) Non verbal message is less important than verbal message
(C) More meaning is conveyed by verbal message than non-verbal message
(D) Only verbal messages should be used for communication at work place
99. A complex sentence contains:
(A) One independent clause and at least one dependent clause
(B) Two or more independent clauses
(C) One independent clause
(D) Two independent clauses and one dependent clause
100. Which of the following sentences is in passive voice, past tense
(A) Ramesh presented a very logical argument
(B) A very logical argument was presented by Ramesh
(C) A very logical argument is being presented by Ramesh
(D) Ramesh is presenting a very logical argument

X-X-X

ROUGH WORK