

Comprehensive 200 MCQ Challenge - Set 05

Subjects: Physics, Chemistry, Mathematics, Hindi, English, Reasoning, Current Affairs, HP GK, and Indian GK. **Level:** B.Sc. Advanced / Post-Graduate Entrance (Very Very Hard).

Mixed MCQs (1-200)

1. The 'Jhugga' movement in Bilaspur (1883-84) was a unique form of protest where Brahmins set their huts on fire and committed self-immolation. This was primarily directed against the tyranny of which Raja? A) Raja Bijai Chand B) Raja Amar Chand C) Raja Anand Chand D) Raja Hira Chand
2. In the Lagrangian formulation, if the Lagrangian L does not depend explicitly on a coordinate q_j , then the corresponding generalized momentum p_j is: A) Zero B) A constant of motion C) Equal to the Hamiltonian D) Linearly increasing with time
3. Choose the most appropriate meaning for the term 'Ab initio': A) From the beginning B) To the extreme C) By virtue of office D) In the absence of
4. If a function $f(x)$ is Riemann integrable on $[a, b]$, then its set of discontinuities must be of: A) Finite size B) Countable size C) Measure zero D) Order one
5. The point group symmetry of the Ferrocene molecule in its eclipsed conformation is: A) D_{5h} B) D_{5d} C) C_{5v} D) D_{2h}
6. 'कनक-कनक ते सौ गुनी, मादकता अधिकाय'—इस पंक्ति में कौन सा अलंकार है? A) उपमा B) रूपक C) यमक D) श्लेष
7. If $7 * 3 = 40$ and $9 * 2 = 77$, what is the value of $8 * 4$? A) 32 B) 48 C) 60 D) 12
8. Who was the President of the 'Himalayan Hill States Regional Council' established in 1946? A) Swami Purnanand B) Pandit Padam Dev C) Shivnanad Ramaul D) Bhagmal Sautha
9. In a canonical ensemble, the probability of a system being in a state with energy E_i is proportional to: A) $e^{-E_i/kT}$ B) $e^{E_i/kT}$ C) $1/E_i$ D) $\ln(E_i)$
10. The Claisen Rearrangement of allyl phenyl ether is an example of which type of sigmatropic shift? A) [1,3] B) [1,5] C) [3,3] D) [2,3]
11. The value of the contour integral $\oint_C \frac{e^{2z}}{(z+1)^4} dz$, where C is the circle $|z| = 2$, is: A) $8\pi ie^{-2}/3$ B) $4\pi ie^{-2}/3$ C) $8\pi ie^2/3$ D) 0
12. Which country recently became the first to provide legal personhood to the entire 'Atrato River' to protect its ecosystem? A) New Zealand B) Colombia C) India D) Ecuador
13. For a photon gas, the chemical potential μ is always: A) Positive B) Negative C) Zero D) Equal to kT
14. 'अन्वय' का सही संधि विच्छेद क्या है? A) अनु + अय B) अन + वय C) अनु + आय D) अनू + अय
15. Find the missing term: Z1A, X2D, V6G, T24J, ... A) R120M B) S120L C) R48M D) R120L

16. In the context of Statistical Thermodynamics, the 'Sackur-Tetrode Equation' is used to calculate the entropy of: A) Diatomic gas B) Monatomic ideal gas C) Crystalline solid D) Liquid metal

17. The dimension of the vector space of all 3×3 symmetric matrices over \mathbb{R} is: A) 3 B) 6 C) 9 D) 5

18. Which committee recommended the 'Three-Language Formula' for education in India? A) Kothari Commission B) Sarkaria Commission C) Verma Committee D) Kasturirangan Committee

19. The 'Skin Depth' δ in a good conductor at frequency f is proportional to: A) f B) $1/f$ C) $1/\sqrt{f}$ D) \sqrt{f}

20. Which spectroscopic technique is most suitable for detecting the presence of a 'triple bond' in a molecule? A) UV-Visible B) IR Spectroscopy C) NMR D) Mass Spectrometry

21. 'उपेक्षा' का विलोम शब्द क्या है? A) अपेक्षा B) अनुपेक्षा C) सपेक्षा D) लौकिक

22. A's son B is married to C whose sister D is married to E, the brother of B. How is D related to A? A) Sister-in-law B) Daughter-in-law C) Cousin D) Niece

23. Under which treaty did the British acquire the 'Kot-Kehloor' area from the Sikhs in 1846? A) Treaty of Lahore B) Treaty of Amritsar C) Treaty of Sagauli D) Treaty of Jullundur

24. The expectation value of the Hamiltonian $\langle H \rangle$ for a system in a state ψ is always: A) Greater than or equal to the ground state energy B) Zero C) Complex D) Less than the ground state energy

25. The number of Sylow 3-subgroups of a group of order 12 is: A) 1 or 2 B) 1 or 4 C) Only 3 D) Only 1

26. Which of the following ligands is a 'non-innocent' ligand? A) NH_3 B) H_2O C) Dithiolene D) Cl^-

27. Identify the synonym for 'EPHEMERAL': A) Eternal B) Transitory C) Majestic D) Mundane

28. The 'Montreal Protocol' was the first international treaty to be ratified by all countries in the UN. What was its primary goal? A) Reducing CO_2 emissions B) Protecting the Ozone Layer C) Banning plastic D) Preserving biodiversity

29. The Joule-Thomson coefficient μ_{JT} for an ideal gas is: A) Positive B) Negative C) Zero D) Infinite

30. In which year was the 'Dhami' firing tragedy, where the state police fired on peaceful protestors led by Bhagmal Sautha? A) July 16, 1939 B) Aug 15, 1942 C) Jan 26, 1948 D) Nov 1, 1966

31. In the Michelson-Morley experiment, the expected fringe shift was calculated based on the earth's velocity relative to: A) The Sun B) The Luminiferous Ether C) The Moon D) The Galactic center

32. If $f(z)$ is an entire function such that $|f(z)| \leq M$ for all z , then $f(z)$ is: A) Zero B) Constant C) Polynomial of degree 1 D) Unbounded

33. 'विमत्स' रस का स्थायी भाव क्या है? A) भय B) जुगुप्सा (घृणा) C) विस्मय D) शोक

34. Change the voice: 'It is time to take tea.' A) It is time for tea to be taken. B) It is time tea taken. C) Tea should be taken at this time. D) Time has come to take tea.

35. The 'Ilbert Bill' controversy during Lord Ripon's tenure was related to: A) Indian judges trying Europeans B) Vernacular Press restrictions C) Reduction in Salt Tax D) Arms Act repeal

36. Which molecule has the highest lattice energy? A) LiF B) MgO C) $NaCl$ D) CaF_2

37. A clock is set right at 5 a.m. The clock loses 16 minutes in 24 hours. What will be the true time when the clock indicates 10 p.m. on the 4th day? A) 11 p.m. B) 12 p.m. C) 10 p.m. D) 9 p.m.

38. The thermodynamic potential that remains constant during a reversible isobaric and isothermal process is: A) Internal Energy B) Enthalpy C) Gibbs Free Energy D) Helmholtz Free Energy

39. The radius of convergence of the power series $\sum_{n=1}^{\infty} \frac{n!}{n^n} z^n$ is: A) 1 B) e C) $1/e$ D) ∞

40. Who was the leader of the 'Pajhota Movement' (1942) against the Raja of Sirmaur? A) Vaid Surat Singh B) Shivanand Ramaul C) Mian Chu-Chu D) Bhagmal Sautha

41. The number of possible microstates for a system of 3 non-distinguishable particles in 5 energy levels following Bose-Einstein statistics is: A) 125 B) 10 C) 35 D) 60

42. 'अन्वित' शब्द में कौन सा प्रत्यय है? A) वित B) इत C) त D) अन

43. Which Indian state has launched the 'HIM DATASTACK' portal for digital governance? A) Haryana B) Uttarakhand C) Himachal Pradesh D) Punjab

44. The magnetic field \mathbf{H} at the center of a square loop of side a carrying current I is: A) $\frac{2\sqrt{2}I}{\pi a}$ B) $\frac{\sqrt{2}I}{\pi a}$ C) $\frac{I}{2\pi a}$ D) 0

45. The set of all rational numbers \mathbb{Q} is: A) Closed in \mathbb{R} B) Open in \mathbb{R} C) Neither open nor closed D) Compact

46. In the Kronig-Penney model, the width of the energy bands increases as the potential barrier strength P : A) Increases B) Decreases C) Remains constant D) Becomes infinite

47. The product formed when Benzene reacts with CO and HCl in the presence of anhydrous $AlCl_3/CuCl$ is: A) Chlorobenzene B) Benzaldehyde C) Benzene sulfonic acid D) Toluene

48. Select the word that is similar in meaning to 'ABNEGATION': A) Self-denial B) Indulgence C) Acceptance D) Accumulation

49. 'तुरंग' किसका पर्यायिकाची है? A) हाथी B) घोड़ा C) शेर D) बिजली

50. In which year was the 'Territorial Council' of HP converted into a 'Legislative Assembly'? A) 1956 B) 1963 C) 1966 D) 1971

51. The partition function Z for a 1D harmonic oscillator in the high-temperature limit ($\beta\hbar\omega \ll 1$) is approximately: A) $1/(\beta\hbar\omega)$ B) $\beta\hbar\omega$ C) $e^{-\beta\hbar\omega}$ D) $\ln(\beta\hbar\omega)$

52. If $f : \mathbb{R} \rightarrow \mathbb{R}$ is a continuous function such that $f(x + y) = f(x) + f(y)$, then $f(x)$ is:
 A) x^2 B) cx C) e^x D) $\sin x$

53. 'अव्ययीभाव' समास का उदाहरण है: A) यथाशक्ति B) राजपुत्र C) नीलकमल D) चौराहा

54. The 'Kuth' (Saussurea costus) plant, found in the high altitudes of Lahaul, is primarily used in which industry? A) Textile B) Perfumery and Medicine C) Rubber D) Food Processing

55. The selection rule for an allowed electronic transition in a centrosymmetric complex (Laporte Rule) states that: A) $g \rightarrow g$ is allowed B) $u \rightarrow u$ is allowed C) $g \rightarrow u$ is allowed D) $\Delta S \neq 0$

56. Find the number of triangles in a hexagon with all diagonals drawn from one vertex? A) 4 B) 6 C) 8 D) 10

57. Choose the correct idiom: 'To wash one's dirty linen in public' means: A) To clean clothes outside B) To discuss private quarrels in front of others C) To be very honest D) To work hard

58. The 'Wavell Plan' (1945) failed primarily because of the disagreement between Congress and Muslim League regarding: A) Partition of India B) Nomination of Muslim members C) Defense portfolio D) Abolition of Princely states

59. The binding energy of the Deuteron is approximately: A) 2.22 MeV B) 8.5 MeV C) 1.11 MeV D) 20 MeV

60. The value of $\lim_{n \rightarrow \infty} \frac{1}{n} (1^k + 2^k + \dots + n^k)^{1/n}$ is: A) 1 B) e C) 0 D) $1/k$

61. Which complex is 'Labile' according to Taube's classification? A) $[Cr(H_2O)_6]^{3+}$ B) $[Co(NH_3)_6]^{3+}$ C) $[Cu(H_2O)_6]^{2+}$ D) $[Fe(CN)_6]^{4-}$

62. 'चिरंतन' का विलोम है: A) नश्वर B) शाश्वत C) सनातन D) अंत

63. The 'Poynting Theorem' is a mathematical statement of: A) Charge conservation B) Momentum conservation C) Energy conservation for EM fields D) Mass conservation

64. If $T : V \rightarrow W$ is a linear transformation and $\dim(V) = 5$, $\dim(\text{range } T) = 3$, then $\dim(\text{null } T)$ is: A) 2 B) 3 C) 5 D) 8

65. Which Himalayan peak is known as the 'Matterhorn of India'? A) Reo Purgyil B) Shivling C) Mani Mahesh D) Ama Dablam

66. The 'Baudisch reaction' is used for the synthesis of: A) o-Nitrosophenols B) Salicylaldehyde C) Aniline D) Benzoic acid

67. Choose the correctly spelled word: A) Liaison B) Laison C) Liason D) Liaisan

68. The Q-value of a nuclear reaction is positive if: A) Kinetic energy is gained B) Mass is gained C) The reaction is endothermic D) The reaction is forbidden

69. The number of elements of order 5 in a group of order 25 is: A) 4 B) 20 C) 24 D) 5

70. 'अधजल गगरी छलकत जाए' लोकोक्ति का अर्थ है: A) कम ज्ञान वाला अधिक दिखावा करता है B) गगरी खाली होना C) पानी का गिरना D) बहुत ज्ञानी होना

71. The 'Poona Pact' (1932) resulted in the: A) Creation of Pakistan B) Reservation of seats for depressed classes C) Ending of Civil Disobedience D) Formation of interim government

72. Which electronic effect involves the displacement of σ -electrons towards a more electronegative atom in a saturated chain? A) Resonance B) Inductive effect C) Hyperconjugation D) Electromeric effect

73. The integral $\int_0^\pi \sin^3 x \, dx$ is: A) $4/3$ B) $2/3$ C) 0 D) $\pi/2$

74. The 'London Dispersion Forces' vary with the distance r between molecules as: A) $1/r^6$ B) $1/r^3$ C) $1/r^2$ D) $1/r^{12}$

75. Which organometallic compound is used as a catalyst in 'Hydroformylation' (Oxo process)? A) $[RhCl(PPh_3)_3]$ B) $[HCo(CO)_4]$ C) $[Fe(CO)_5]$ D) $[Ni(CO)_4]$

76. 'वर्तनी' की दृष्टि से अशुद्ध शब्द है: A) उज्ज्वल B) कवयित्री C) ज्योत्सना D) आर्द्धिवाद

77. Who is the first Indian to win the 'Abel Prize' for mathematics? A) S.R. Srinivasa Varadhan B) Akshay Venkatesh C) Manjul Bhargava D) Harish-Chandra

78. The 'Guler' school of painting reached its zenith during the reign of which Raja? A) Raja Goverdhan Chand B) Raja Prakash Chand C) Raja Sansar Chand D) Raja Dalip Singh

79. The Fermi-Dirac distribution function $f(E)$ at $T = 0 \text{ K}$ is a step function. What is its value for $E < E_F$? A) 0 B) 0.5 C) 1 D) ∞

80. A man can row 6 km/hr in still water. If the speed of the current is 2 km/hr , it takes him 3 hours to row to a place and come back. How far is the place? A) 8 km B) 9 km C) 10 km D) 12 km

81. Identify the part of speech for the underlined word: 'He is <u>very</u> fast.' A) Adjective B) Adverb C) Verb D) Noun

82. In which year was the 'Bilaspur' state merged with Himachal Pradesh? A) July 1, 1954 B) Nov 1, 1956 C) Jan 25, 1971 D) April 15, 1948

83. The Helmholtz Free Energy F is defined as: A) $U + PV$ B) $U - TS$ C) $H - TS$ D) $G - PV$

84. Every Cauchy sequence of real numbers is: A) Divergent B) Unbounded C) Bounded D) Oscillatory

85. 'सिर मुड़ाते ही ओले पड़ना' का अर्थ है: A) कार्य प्रारंभ करते ही विघ्न आना B) सिर का गंजा होना C) ठंड लगना D) भाग्यशाली होना

86. Which river in HP flows through the 'Sangla Valley'? A) Baspa B) Satluj C) Spiti D) Tons

87. In quantum mechanics, the probability current density \mathbf{J} satisfies the continuity equation $\nabla \cdot \mathbf{J} + \frac{\partial \rho}{\partial t} = 0$. For a stationary state, $\nabla \cdot \mathbf{J}$ is: A) Positive B) Negative C) Zero D) Infinite

88. The most effective reagent for the conversion of an Alkyne to a 'Trans-alkene' is: A) $H_2, Pd/BaSO_4$ (Lindlar) B) $Na/\text{liquid } NH_3$ C) $LiAlH_4$ D) B_2H_6

89. If $f(z) = \frac{1}{z(z-1)}$, the residue at $z = 1$ is: A) 1 B) -1 C) 0 D) $2\pi i$

90. The 'Masrur' rock-cut temples, often called the 'Ellora of Himachal', belong to which architectural style? A) Nagara B) Dravidian C) Pagoda D) Indo-Saracenic

91. Which space agency recently launched the 'JUICE' mission to explore Jupiter's icy moons? A) NASA B) ESA C) ISRO D) JAXA

92. The 'Curie-Weiss Law' for a ferromagnet above the Curie temperature T_C states that susceptibility $\chi \propto$: A) $1/T$ B) $1/(T - T_C)$ C) $T - T_C$ D) e^{-T/T_C}

93. 'चयन' में कौन सी संधि है? A) अयादि B) यण C) वृद्धि D) दीघ

94. A person who is indifferent to both pleasure and pain: A) Stoic B) Hedonist C) Sadist D) Masochist

95. Six persons A, B, C, D, E, F are sitting around a circular table. B is between F and C. A is second to the left of E and second to the right of C. Who is facing A? A) B B) D C) E D) F

96. Which is the only district of Himachal Pradesh that does not touch any international or inter-state border? A) Hamirpur B) Bilaspur C) Mandi D) None (All touch borders)

97. The 'Beckmann Rearrangement' converts an Oxime into: A) Amine B) Amide C) Nitrile D) Alcohol

98. The directional derivative of $\phi = xyz$ at $(1, 2, 3)$ in the direction of the vector $\hat{i} + \hat{j} + \hat{k}$ is: A) $11/\sqrt{3}$ B) $6/\sqrt{3}$ C) $\sqrt{3}$ D) 11

99. 'जिसका निवारण न हो सके' के लिए एक शब्द है: A) अनिवार्य B) अपरिहार्य C) असाध्य D) अनुकरणीय

100. Who is the recipient of the 2024 'Saraswati Samman'? A) Prabha Varma B) Sivasankari C) Ramdarash Mishra D) Sharad Pagare

101. The 'Bravais Lattices' in 3D are exactly: A) 7 B) 14 C) 32 D) 230

102. Which molecule is 'Fluxional' at room temperature? A) PF_5 B) SF_6 C) CH_4 D) IF_7

103. If A is a 3×3 matrix such that $A^3 = I$, the possible eigenvalues are: A) $1, \omega, \omega^2$ B) Only 1 C) $1, -1$ D) $0, 1$

104. 'काठ की हांडी बार-बार नहीं चढ़ती' का अर्थ है: A) छल-कपट का व्यवहार हमेशा नहीं चलता B) लकड़ी का बर्तन जलना C) गरीबी में जीना D) मूर्खतापूर्ण कार्य

105. In which district is the 'Daranghati' sanctuary located? A) Shimla B) Kullu C) Mandi D) Chamba

106. Which is the deepest oceanic trench in the world? A) Mariana Trench B) Tonga Trench C) Java Trench D) Puerto Rico Trench

107. The 'Stark Effect' refers to the splitting of spectral lines in the presence of: A) Magnetic field B) Electric field C) Gravitational field D) Pressure

108. Which is the strongest 'Pi-acceptor' ligand? A) CO B) NO^+ C) CN^- D) PF_3

109. The probability of choosing a random point in a unit square that lies inside the inscribed circle is: A) $1/4$ B) $\pi/4$ C) $1/2$ D) $\pi/2$

110. 'मुख' का विलोम शब्द है: A) वाचाल B) गौण C) प्रत्यक्ष D) पृष्ठ

111. Choose the correctly spelled word: A) Questionnaire B) Questionaire C) Questionnair D) Questionnare

112. Who was the first Lieutenant Governor of Himachal Pradesh? A) Maj. Gen. Himmat Singh B) Bhagwan Sahay C) S. Chakravarti D) N.C. Mehta

113. The 'Displacement Current' density \mathbf{J}_d is given by: A) $\epsilon_0 \frac{\partial \mathbf{E}}{\partial t}$ B) $\mu_0 \frac{\partial \mathbf{B}}{\partial t}$ C) $\sigma \mathbf{E}$ D) $\nabla \times \mathbf{H}$

114. The 'Norrish Type II' reaction of ketones involves the abstraction of a hydrogen atom from the: A) α -position B) β -position C) γ -position D) δ -position

115. If $f(z) = u + iv$ is analytic, then u and v satisfy: A) Laplace's Equation B) Poisson's Equation C) Wave Equation D) Diffusion Equation

116. 'पावक' में कौन सी संधि है? A) अयादि B) यण C) गुण D) वृद्धि

117. Which Indian city is known as the 'Leather City of the World'? A) Kanpur B) Agra C) Chennai D) Kolkata

118. Which state has the highest 'Human Development Index' (HDI) in India consistently? A) Tamil Nadu B) Kerala C) Himachal Pradesh D) Punjab

119. The 'Skin depth' in a conductor is infinite for: A) Very high frequency B) Direct Current (DC) C) Microwave frequency D) Optical frequency

120. Which element is used as the 'activator' in ZnS based phosphors? A) Cu B) Al C) Fe D) Ni

121. The value of $\int_0^\infty \frac{\sin x}{x} dx$ is: A) $\pi/2$ B) π C) 1 D) 0

122. 'कान कतरना' मुहावरे का अर्थ है: A) बहुत चतुर होना B) सजा देना C) बहरा होना D) अपमान करना

123. If the day after tomorrow is Sunday, what was the day three days before yesterday? A) Monday B) Sunday C) Saturday D) Friday

124. The 'Minjar' fair of Chamba was started by which Raja to commemorate his victory over the Raja of Trigarta? A) Sahil Varman B) Meru Varman C) Mushan Varman D) Aditya Varman

125. For a non-ideal gas, the 'Fugacity Coefficient' approaches 1 as: A) $P \rightarrow 0$ B) $P \rightarrow \infty$ C) $T \rightarrow 0$ D) $V \rightarrow 0$

126. A function $f(x)$ is uniformly continuous on $(0, 1)$ if $f(x) =:$ A) $1/x$ B) $\sin(1/x)$ C) x^2 D) $e^{1/x}$

127. Complete the idiom: 'To cry over spilt ____.' A) water B) milk C) wine D) juice

128. The 'Aligarh Movement' was founded by: A) Sir Sayyid Ahmad Khan B) Muhammad Ali Jinnah C) Maulana Azad D) Shaukat Ali

129. In a nuclear reactor, 'Xenon poisoning' refers to: A) Toxic leaks B) Neutron absorption by $Xe - 135$ C) Fuel corrosion D) Cooling failure

130. The 'Favorskii Rearrangement' involves the conversion of α -haloketones into: A) Esters B) Amides C) Carboxylic acids D) All of these (depending on nucleophile)

131. The 'Green's Theorem' relates a line integral around a simple closed curve C to a double integral over the region D bounded by C . It is a 2D version of: A) Stokes' Theorem B) Gauss Divergence Theorem C) Both A and B D) Taylor's Theorem

132. 'भींगी बिल्ली बनना' का अर्थ है: A) भींग जाना B) डर जाना C) बिल्ली जैसा दिखना D) बहुत बोलना

133. Which country is the world's largest producer of 'Uranium'? A) Canada B) Kazakhstan C) Australia D) Niger

134. Which mountain pass connects the 'Lahaul' valley with the 'Chamba' valley? A) Rohtang Pass B) Kugti Pass C) Baralacha Pass D) Kunzum Pass

135. The 'Virial Equation of State' expresses the compressibility factor Z as a power series in: A) $1/V$ B) P C) T D) Both A and B

136. Which particle has the longest mean life? A) Neutron (free) B) Proton C) Pion D) Muon

137. The derivative of $\text{erf}(x)$ (Error Function) is: A) e^{-x^2} B) $\frac{2}{\sqrt{\pi}}e^{-x^2}$ C) $\frac{1}{\sqrt{\pi}}e^{-x^2}$ D) $\text{erfc}(x)$

138. Choose the correct collective noun: 'A _____ of lions.' A) Pride B) Pack C) Herd D) Flock

139. If 'ORANGE' is coded as 'PSBOHF', how is 'APPLE' coded? A) BQQMF B) BPPME C) BQQNF D) BRRMF

140. Which king of HP was contemporary to Akbar and was kept as a hostage in the Mughal court? A) Raja Vidhi Chand B) Raja Jai Chand C) Raja Jagat Singh D) Raja Budh Chand

141. The 'Abbe Sine Condition' in optics is essential for the elimination of: A) Spherical aberration B) Coma C) Astigmatism D) Chromatic aberration

142. 'Sharpless Asymmetric Epoxidation' uses which catalyst system? A) $Ti(O-iPr)_4/\text{Diethyl tartrate}$ B) OsO_4 C) $mCPBA$ D) $KMnO_4$

143. The value of $\int_0^\infty e^{-x^2} x^3 dx$ is: A) $1/2$ B) 1 C) $\sqrt{\pi}/2$ D) $1/4$

144. 'उन्नति' का विलोम शब्द है: A) अवनति B) पतन C) अधोगति D) नीचे

145. Who was the first Indian to be elected as a member of the 'British Parliament'? A) Dadabhai Naoroji B) Gopal Krishna Gokhale C) B.R. Ambedkar D) J.L. Nehru

146. For an 'Athermal' solution, the enthalpy of mixing (ΔH_{mix}) is: A) Positive B) Negative C) Zero D) Infinite

147. Which type of liquid crystals are used in 'LCD' displays? A) Nematic B) Smectic C) Cholesteric D) Discotic

148. The area of the region bounded by $y = \sin x$, $y = \cos x$ and the y -axis ($0 \leq x \leq \pi/4$) is: A) $\sqrt{2} - 1$ B) 1 C) $\sqrt{2}$ D) $1/2$

149. 'सन्मति' का संधि विच्छेद है: A) सत + मति B) सन् + मति C) सम + मति D) स + न्मति

150. Where is the 'Himalayan Forest Research Institute' (HFRI) located? A) Shimla (Panthaghati) B) Manali C) Mandi D) Solan

151. Which of the following is a 'Pseudo-vector'? A) Velocity B) Force C) Torque D) Momentum

152. In the 'Wacker Process', the co-catalyst used for the oxidation of ethene to acetaldehyde is: A) $CuCl_2$ B) $AgNO_3$ C) V_2O_5 D) $NiCl_2$

153. The Fourier transform of a 'Gaussian function' is: A) Delta function B) Gaussian function C) Sine function D) Step function

154. 'कलेजा ठंडा होना' का अर्थ है: A) संतोष होना B) बहुत ठंड लगना C) बीमार होना D) मर जाना

155. Which Indian state is the largest producer of 'Manganese'? A) Odisha B) Madhya Pradesh C) Maharashtra D) Karnataka

156. The 'Gruneisen Parameter' γ relates the thermal expansion to: A) Specific heat B) Resistivity C) Viscosity D) Elasticity

157. Which element has the highest 'Electronegativity' on the Pauling scale? A) Oxygen B) Fluorine C) Chlorine D) Neon

158. If $x^y = e^{x-y}$, then dy/dx is: A) $\frac{\ln x}{(1+\ln x)^2}$ B) $\frac{1}{(1+\ln x)^2}$ C) $\frac{\ln x}{1+\ln x}$ D) e^x

159. 'गागर में सागर भरना' का अर्थ है: A) थोड़े में बहुत कहना B) सागर से गागर भरना C) असंभव कार्य करना D) बहुत बोलना

160. Which district of HP has the highest 'Sex Ratio' (2011 Census)? A) Hamirpur B) Kangra C) Mandi D) Bilaspur

161. The unit of 'Magnetic Susceptibility' (χ) in SI is: A) A/m) Dimensionless C) Tesla D) Weber

162. Which vitamin is known as 'Tocopherol'? A) Vitamin A B) Vitamin D C) Vitamin E D) Vitamin K

163. The derivative of $\cosh^{-1} x$ is: A) $1/\sqrt{x^2 - 1}$ B) $1/\sqrt{1 - x^2}$ C) $1/(x^2 + 1)$ D) $\sinh x$

164. 'स्वतंत्रता' का विलोम है: A) परतंत्रता B) गुलामी C) बंधन D) कैद

165. The headquarters of the 'International Court of Justice' is in: A) Geneva B) The Hague C) New York D) Paris

166. A 'Cyclotron' cannot accelerate: A) Protons B) Alpha particles C) Electrons D) Deuterons

167. Which gas is used in 'Carbon Dating'? A) CO_2 (containing C – 14) B) CH_4 C) N_2 D) O_2

168. The value of $\int_0^{\pi/2} \sin^4 x \cos^2 x dx$ is: A) $\pi/32$ B) $\pi/16$ C) $1/32$ D) 0

169. 'नाक का बाल होना' मुहावरे का अर्थ है: A) बहुत प्यारा होना B) कष्ट देना C) नाक साफ करना D) जिद करना

170. 'Sorang' hydel project is located in which district? A) Kinnaur B) Shimla C) Kullu D) Chamba

171. The speed of sound in a solid depends on: A) Young's Modulus and Density B) Temperature only C) Pressure only D) Frequency

172. The oxidation state of O in F_2O is: A) -2 B) -1 C) +2 D) +1

173. The distance between the parallel planes $2x - y + 2z + 3 = 0$ and $4x - 2y + 4z + 15 = 0$ is: A) $3/2$ B) $9/2$ C) $3/4$ D) 1

174. 'सरस्वती' का पर्यायवाची नहीं है: A) शारदा B) भारती C) इंदिरा D) वार्देवी

175. Which planet is known as the 'Swift Planet' due to its orbit speed? A) Mercury B) Venus C) Earth D) Mars

176. The resistance of an ideal current source is: A) Zero B) Infinite C) 1Ω D) Negative

177. Which element is used as a 'Cryogen' in *NMR* magnets? A) Liquid Nitrogen B) Liquid Helium C) Liquid Argon D) Liquid Oxygen

178. The value of $\cos(270^\circ)$ is: A) 0 B) 1 C) -1 D) $1/2$

179. 'क्षणिक' का विलोम शब्द है: A) शाश्वत B) अल्प C) दीर्घ D) नश्वर

180. The 'Bijli Mahadev' temple in Kullu is famous for its 60-foot staff that attracts: A) Rain B) Lightning C) Wind D) Birds

181. A particle of rest mass m_0 has total energy $2m_0c^2$. Its velocity is: A) $c/2$ B) $\sqrt{3}c/2$ C) $c/\sqrt{2}$ D) $0.9c$

182. Which radioactive isotope is used to treat 'Thyroid' disorders? A) $I - 131$ B) $Co - 60$ C) $P - 32$ D) $C - 14$

183. If $P(A) = 0.8$, $P(B) = 0.5$ and $P(B|A) = 0.4$, then $P(A|B)$ is: A) 0.64 B) 0.32 C) 0.4 D) 0.8

184. 'मुँह फुलाना' का अर्थ है: A) अप्रसन्न होना B) सूजन आना C) बहुत खाना D) मुँह की बीमारी

185. Which part of the human eye is transplanted? A) Retina B) Cornea C) Lens D) Entire eye

186. The unit of 'Self Inductance' is equivalent to: A) $Volt \cdot second / Ampere$ B) $Ohm \cdot second$ C) Both A and B D) $Weber$

187. Which component of blood is responsible for 'Immunity'? A) Lymphocytes B) Erythrocytes C) Thrombocytes D) Plasma

188. If $A + B + C = \pi$, then $\tan A + \tan B + \tan C$ is: A) $\tan A \tan B \tan C$ B) 1 C) 0 D) 3

189. 'दशानन' में कौन सा समास है? A) बहुवीहि B) द्विगु C) द्वंद्व D) तत्पुरुष

190. Which glacier is known as the 'Lady of Lahaul'? A) Bara Shigri B) Menthosa C) Lady of Lahaul D) Chandra

191. The 'Photoelectric effect' supports the: A) Wave nature of light B) Particle nature of light C) Dual nature D) None

192. Which gas is known as 'Lewisite'? A) Mustard gas B) Chlorovinylarsine dichloride C) $COCl_2$ D) NH_3

193. The integral $\int_{-\infty}^{\infty} e^{-x^2} dx$ is: A) $\sqrt{\pi}$ B) π C) 1 D) 0

194. 'आँखें दिखाना' का अर्थ है: A) क्रोध करना (डराना) B) इशारा करना C) प्रेम करना D) आँख का इलाज

195. Who is the author of 'Train to Pakistan'? A) Khushwant Singh B) Mulk Raj Anand C) R.K. Narayan D) Vikram Seth

196. A 'P-N junction' diode acts as: A) Amplifier B) Rectifier C) Oscillator D) Filter

197. Which bond is present in 'Solid Argon'? A) Metallic B) Covalent C) van der Waals D) Ionic

198. The volume of a cylinder with radius r and height h is: A) $\pi r^2 h$ B) $2\pi r h$ C) $1/3\pi r^2 h$ D) πr^3

199. 'निरीश्वरवादी' का विलोम शब्द है: A) आस्तिक B) नास्तिक C) धार्मिक D) पारंपरिक

200. Who was the first person from HP to win the 'Param Vir Chakra'? A) Maj. Somnath Sharma B) Capt. Vikram Batra C) Rfn. Sanjay Kumar D) Capt. Saurabh Kalia

Answer Key

1-D, 2-B, 3-A, 4-C, 5-A, 6-C, 7-C, 8-A, 9-A, 10-C, 11-A, 12-B, 13-C, 14-A, 15-D, 16-B, 17-B, 18-A, 19-C, 20-B, 21-A, 22-B, 23-D, 24-A, 25-B, 26-C, 27-B, 28-B, 29-C, 30-A, 31-B, 32-B, 33-B, 34-A, 35-A, 36-B, 37-A, 38-C, 39-C, 40-A, 41-C, 42-B, 43-C, 44-A, 45-C, 46-B, 47-B, 48-A, 49-B, 50-B, 51-A, 52-B, 53-A, 54-B, 55-C, 56-A, 57-B, 58-B, 59-A, 60-A, 61-C, 62-A, 63-C, 64-A, 65-B, 66-A, 67-A, 68-A, 69-B, 70-A, 71-B, 72-B, 73-A, 74-A, 75-B, 76-D, 77-A, 78-A, 79-C, 80-B, 81-B, 82-A, 83-B, 84-C, 85-A, 86-A, 87-C, 88-B, 89-B, 90-A, 91-B, 92-B, 93-A, 94-A, 95-B, 96-D, 97-B,

98-A, 99-B, 100-A, 101-B, 102-A, 103-A, 104-A, 105-A, 106-A, 107-B, 108-B, 109-B, 110-B, 111-A, 112-A, 113-A, 114-C, 115-A, 116-A, 117-A, 118-B, 119-B, 120-A, 121-A, 122-A, 123-D, 124-A, 125-A, 126-C, 127-B, 128-A, 129-B, 130-D, 131-C, 132-B, 133-B, 134-B, 135-A, 136-B, 137-B, 138-A, 139-A, 140-A, 141-B, 142-A, 143-A, 144-A, 145-A, 146-C, 147-A, 148-A, 149-A, 150-A, 151-C, 152-A, 153-B, 154-A, 155-B, 156-A, 157-B, 158-A, 159-A, 160-A, 161-B, 162-C, 163-A, 164-A, 165-B, 166-C, 167-A, 168-A, 169-A, 170-A, 171-A, 172-C, 173-A, 174-C, 175-A, 176-C, 177-B, 178-B, 179-A, 180-A, 181-B