NEET (UG)

Sample Question Paper - 5

Full Mock Test | 200 Questions | Time: 3 Hours | Max. Marks: 720

Important Instructions:

1. There are 200 questions. Attempt only 180 questions. Each question carries 4 marks.
2. For each correct response: +4 marks. For each incorrect response: -1 mark. Unattempted: 0 marks.
3. Section A has 35 questions (compulsory). Section B has 15 questions (attempt only 10).
4. Maximum marks: 720. Use Blue/Black ballpoint pen only.

PHYSICS

SECTION A

Q.1. The dimensional formula of angular momentum is:

(A) [ML^2T^-1]
(B) [MLT^-1]
(C) [ML^2T^-2]
(D) [ML^3T^-1]

Q.2. A ball is thrown upward with velocity u. Time to reach maximum height:

(A) u/g
(B) 2u/g
(C) u/2g
(D) g/u

Q.3. The unit of magnetic flux is:

(A) Weber (Wb)
(B) Tesla
(C) Henry
(D) Farad

Q.4. Pair production converts:

(A) Gamma ray to electron-positron pair
(B) X-ray to electron
(C) Neutron to proton
(D) None

Q.5. A convex mirror always forms:

(A) Virtual, erect, diminished image
(B) Real image
(C) Magnified image
(D) Inverted image

Q.6. The pressure exerted by a gas is due to:

(A) Molecular collisions with walls

(B) Gravity
(C) Intermolecular attraction
(D) Temperature alone

Q.7. Two wires A (2R, L) and B (R, 2L) are connected in series. Ratio of heat produced:

(A) 1:2
(B) 2:1
(C) 1:1
(D) 4:1

Q.8. The photoelectric effect proves light has:

(A) Particle nature (photons)
(B) Wave nature
(C) Both
(D) Neither

Q.9. Magnetic susceptibility of diamagnetic material is:

(A) Small negative
(B) Small positive
(C) Large positive
(D) Zero

Q.10. In a transistor amplifier, power gain is product of:

(A) Voltage gain and current gain
(B) Voltage gain only
(C) Current gain only
(D) Resistance ratio

Q.11. The half power frequencies in a resonance circuit define:

(A) Bandwidth
(B) Resonant frequency
(C) Quality factor
(D) Impedance

Q.12. Gauss's law relates electric flux to:

(A) Enclosed charge / epsilon_0
(B) Charge density
(C) Current
(D) Magnetic field

Q.13. A soap bubble has two surfaces. Total surface energy is:

(A) 2 x 4 pi r^2 x T
(B) 4 pi r^2 x T
(C) 8 pi r^2 x T
(D) pi r^2 x T

Q.14. The maximum range of projectile is achieved when angle =:

(A) 45 degrees

(B) 60 degrees
(C) 30 degrees
(D) 90 degrees

Q.15. The internal energy of ideal gas depends only on:

(A) Temperature
(B) Pressure
(C) Volume
(D) Both T and P

Q.16. A coil of N turns area A in magnetic field B. Maximum EMF when rotated at omega:

(A) N*A*B*omega
(B) N*B*omega
(C) A*B*omega
(D) N*A*omega

Q.17. The interference pattern in YDSE is observed due to:

(A) Coherent sources
(B) Incoherent sources
(C) Single slit
(D) Reflection

Q.18. In photoelectric effect, saturation current depends on:

(A) Intensity of light
(B) Frequency
(C) Both
(D) Neither

Q.19. The principle of conservation of charge states:

(A) Net charge of isolated system is constant
(B) Charge can be created
(C) Charge can be destroyed
(D) Charge is always positive

Q.20. A body moves in uniform circular motion. Work done by centripetal force is:

(A) Zero
(B) Positive
(C) Negative
(D) Variable

Q.21. The impedance of purely capacitive circuit at frequency f is:

(A) 1/(2*pi*f*C)
(B) 2*pi*f*C
(C) f*C
(D) 1/(f*C)

Q.22. At absolute zero, molecular motion:

(A) Ceases (zero-point energy remains)

(B) Reaches maximum
(C) Reverses direction
(D) Becomes random

Q.23. The persistence of vision is approximately:

(A) 1/16 second
(B) 1 second
(C) 1/100 second
(D) 1/8 second

Q.24. Coefficient of restitution for perfectly inelastic collision:

(A) 0
(B) 1
(C) 0.5
(D) Infinity

Q.25. The lens maker's equation uses:

(A) Radii of curvature and refractive index
(B) Mass of lens
(C) Colour of light
(D) Temperature

Q.26. AM radio waves have frequency range:

(A) 530 kHz to 1710 kHz
(B) 88 to 108 MHz
(C) 3-30 MHz
(D) 30-300 GHz

Q.27. The Biot number in heat transfer compares:

(A) Internal to external thermal resistance
(B) Conduction to convection
(C) None
(D) Radiation to conduction

Q.28. A particle of mass m with charge q in electric field E and magnetic field B travels straight when:

(A) E = v*B
(B) E = B
(C) v = B/E
(D) q = m

Q.29. Stefan-Boltzmann law states that power radiated:

(A) Proportional to T^4
(B) Proportional to T
(C) Proportional to T^2
(D) Inversely proportional to T

Q.30. NOR gate is universal because:

(A) It can construct all other gates

(B) It is the simplest

(C) It has lowest cost

(D) None

Q.31. If string tension is T, mass per unit length is mu, wave velocity is:

(A) sqrt(T/mu)

(B) sqrt(mu/T)

(C) T*mu

(D) T/mu

Q.32. Pair of physical quantities having same dimensions:

(A) Angular momentum and Planck's constant

(B) Force and energy

(C) Power and momentum

(D) Velocity and acceleration

Q.33. The energy gap of silicon at room temperature is approximately:

(A) 1.1 eV

(B) 3 eV

(C) 0.1 eV

(D) 5 eV

Q.34. Microwaves are used in:

(A) Radar and microwave ovens

(B) X-ray imaging

(C) TV broadcasting

(D) Radio communication

Q.35. In a fission reaction, the sum of rest masses of products is:

(A) Less than reactants (mass defect)

(B) Equal to reactants

(C) More than reactants

(D) Variable

SECTION B

Q.36. Snell's law of refraction: n1 sin(i) = n2 sin(r). If n2 > n1, then:

(A) r < i (ray bends toward normal)

(B) r > i

(C) r = i

(D) r = 90 degrees

Q.37. The Doppler shift in light is used to:

(A) Measure stellar velocities (redshift/blueshift)

(B) Measure temperature

(C) Detect magnetic fields

(D) Measure mass

Q.38. The quantum of magnetic flux is:

(A) h/2e (fluxon)
(B) h/e
(C) e/h
(D) 2e/h

Q.39. Heliocentric model was proposed by:

(A) Copernicus
(B) Ptolemy
(C) Galileo
(D) Kepler

Q.40. Cyclotron frequency is independent of:

(A) Speed (for non-relativistic case)
(B) Charge
(C) Mass
(D) Magnetic field

Q.41. The energy levels of hydrogen atom are:

(A) E_n = -13.6/n^2 eV
(B) E_n = -13.6*n^2 eV
(C) E_n = 13.6/n eV
(D) E_n = -n^2 eV

Q.42. Wheatstone bridge is used to measure:

(A) Unknown resistance accurately
(B) Capacitance
(C) Inductance
(D) EMF

Q.43. In a spring-mass system on frictionless surface, total mechanical energy is:

(A) Constant
(B) Increasing
(C) Decreasing
(D) Zero

Q.44. The critical angle for glass (n=1.5) is:

(A) 41.8 degrees
(B) 45 degrees
(C) 30 degrees
(D) 60 degrees

Q.45. The photoelectric work function has units:

(A) Electron-Volt (eV) or Joules
(B) Watts
(C) Amperes
(D) Coulombs

Q.46. Wave-particle duality was proposed by:

(A) de Broglie
(B) Bohr
(C) Heisenberg
(D) Schrodinger

Q.47. The displacement node in organ pipe open at both ends is at:

(A) Antinodes at both ends, nodes at center
(B) Nodes at both ends
(C) Antinodes at center
(D) No nodes

Q.48. Specific resistance (resistivity) depends on:

(A) Material and temperature, not dimensions
(B) Dimensions only
(C) Length only
(D) Area only

Q.49. Magnification of simple microscope at near point (D=25 cm):

(A) m = 1 + D/f
(B) m = D/f
(C) m = f/D
(D) m = D*f

Q.50. Tunnel diode works on:

(A) Quantum tunnelling effect
(B) Avalanche effect
(C) Zener effect
(D) PN junction

CHEMISTRY

SECTION A

Q.51. The molecular formula of ethylene is:

(A) C2H4
(B) C2H2
(C) C2H6
(D) C3H6

Q.52. Which of these is a Lewis base?

(A) NH3
(B) BF3
(C) AlCl3
(D) H+

Q.53. Hybridisation of carbon in diamond:

(A) sp3
(B) sp2

(C) sp
(D) sp3d

Q.54. The Born-Haber cycle calculates:

(A) Lattice enthalpy of ionic compounds
(B) Entropy change
(C) Gibbs energy
(D) Activation energy

Q.55. The acid used in car batteries is:

(A) H_2SO_4 (dilute)
(B) HCl
(C) HNO_3
(D) H_3PO_4

Q.56. Peptization is the process of:

(A) Dispersing precipitate into colloidal solution
(B) Coagulating colloid
(C) Crystallizing salt
(D) Evaporating liquid

Q.57. The Nernst equation gives potential at:

(A) Non-standard conditions
(B) Standard conditions only
(C) Any temperature
(D) Zero current

Q.58. Inductive effect is transmitted through:

(A) Sigma bonds
(B) Pi bonds
(C) Both
(D) Hydrogen bonds

Q.59. The compound with least boiling point among pentane isomers:

(A) Neopentane (2,2-dimethylpropane)
(B) n-Pentane
(C) Isopentane
(D) 2-methylbutane

Q.60. Antibonding molecular orbital has:

(A) Node between nuclei
(B) No nodes
(C) Node at nucleus
(D) Maximum electron density

Q.61. The test for primary alcohol using Lucas reagent:

(A) Reacts slowest (no turbidity immediately)
(B) Reacts fastest

(C) Reacts moderately
(D) No reaction

Q.62. Which gas is produced when $CaCO_3$ reacts with HCl?

(A) CO_2
(B) H_2
(C) Cl_2
(D) O_2

Q.63. Electrophilic aromatic substitution requires:

(A) Electron-rich aromatic ring
(B) Electron-poor ring
(C) Radical
(D) Nucleophile

Q.64. Polymer of tetrafluoroethylene is:

(A) Teflon (PTFE)
(B) PVC
(C) Polystyrene
(D) Neoprene

Q.65. The specific rotation of glucose is:

(A) + 52.5 degrees
(B) - 52.5 degrees
(C) 0
(D) + 112 degrees

Q.66. The compound formed by reaction of alcohol with PCl_5:

(A) Alkyl chloride
(B) Ether
(C) Ester
(D) Acid

Q.67. Standard hydrogen electrode has:

(A) pH = 0, 1 atm H_2, Pt electrode
(B) pH = 7
(C) pH = 14
(D) Any pH

Q.68. The Grignard reagent reacts with CO_2 to give:

(A) Carboxylic acid (after hydrolysis)
(B) Ester
(C) Aldehyde
(D) Ketone

Q.69. Water glass is:

(A) Sodium silicate (Na_2SiO_3)
(B) Sodium aluminate

(C) Sodium carbonate
(D) Silica gel

Q.70. The electron affinity of fluorine is less than chlorine because:

(A) Compact size of F causes more e-e repulsion
(B) F is more electronegative
(C) F has lower nuclear charge
(D) F is in period 2

Q.71. The compound used as antiknocking agent in petrol is:

(A) Tetraethyl lead (TEL)
(B) Ethanol
(C) Benzene
(D) Cyclohexane

Q.72. Chromatography separates compounds based on:

(A) Differential migration (adsorption/partition)
(B) Boiling point
(C) Melting point
(D) Density

Q.73. The most basic amine among:

(A) Triethylamine (most substituted, most basic in gas phase)
(B) Pyridine
(C) Aniline
(D) Acetamide

Q.74. Dehydration of alcohol gives:

(A) Alkene (elimination)
(B) Aldehyde
(C) Ether (at low temp) or alkene (at high temp)
(D) Acid

Q.75. The reagent for converting aldehyde to alcohol:

(A) $NaBH_4$ or $LiAlH_4$
(B) Tollens'
(C) Fehling's
(D) CrO_3

Q.76. Electrolysis of dilute H_2SO_4 gives at anode:

(A) O_2
(B) H_2
(C) SO_2
(D) H_2S

Q.77. The process of converting alkene to alcohol using dilute H_2SO_4 and water:

(A) Acid-catalysed hydration
(B) Ozonolysis

(C) Hydrogenation
(D) Halogenation

Q.78. Salting out of soap is done with:

(A) NaCl (concentrated)
(B) NaOH
(C) HCl
(D) Water

Q.79. Optical isomers have the same:

(A) Physical properties except optical rotation
(B) All properties
(C) None of the properties
(D) Melting point only

Q.80. Organophosphate compounds are:

(A) Nerve agents and pesticides
(B) Vitamins
(C) Antibiotics
(D) Analgesics

Q.81. The condensation polymer formed from amino-caproic acid is:

(A) Nylon-6
(B) Nylon-6,6
(C) Terylene
(D) Dacron

Q.82. Aqua regia dissolves gold due to:

(A) Oxidation by HNO_3 and complexation by HCl
(B) Reduction
(C) Substitution
(D) Precipitation

Q.83. Beer's law relates absorbance to:

(A) Concentration only (at fixed path length)
(B) Path length only
(C) Temperature
(D) Wavelength

Q.84. The VSEPR model predicts that SO_2 is:

(A) Bent (angular)
(B) Linear
(C) Trigonal planar
(D) T-shaped

Q.85. The halogen that disproportionates in water is:

(A) Fluorine (not disproportionation but reacts with water)
(B) Chlorine (ClO^- + HCl from $Cl_2 + H_2O$)

(C) Bromine

(D) Iodine

SECTION B

Q.86. Metallocenes have:

(A) Metal ion sandwiched between cyclopentadienyl rings

(B) Metal bonded to oxygen

(C) Ionic metal-ligand bond

(D) None

Q.87. Zwitter ion forms when pH equals:

(A) Isoelectric point of amino acid

(B) pH 7 always

(C) pH 0

(D) pH 14

Q.88. The entropy of a perfect crystal at absolute zero is:

(A) Zero (Third law)

(B) Maximum

(C) Positive

(D) Negative

Q.89. Ferrimagnetism is found in:

(A) Fe_3O_4 (magnetite)

(B) Iron metal

(C) Nickel

(D) Cobalt

Q.90. The drug aspirin is:

(A) Analgesic, anti-inflammatory, antipyretic

(B) Antibacterial

(C) Antifungal

(D) Antiviral

Q.91. Atom economy measures:

(A) How much of reactants end up in desired product

(B) Reaction rate

(C) Selectivity

(D) Conversion

Q.92. The 18-electron rule applies to:

(A) Organometallic complexes stability

(B) Coordination compounds

(C) Ionic compounds

(D) Covalent compounds

Q.93. Hydration of alkyne with Hg^{2+} catalyst gives:

(A) Aldehyde (from terminal) or ketone (internal)

(B) Alcohol
(C) Ether
(D) Alkane

Q.94. The Cope rearrangement is a:

(A) [3,3]-sigmatropic rearrangement
(B) [1,5]-shift
(C) Electrocyclic reaction
(D) Cycloaddition

Q.95. Zeolites are used as:

(A) Ion exchange resins and molecular sieves
(B) Catalysts only
(C) Absorbents only
(D) Fertilizers

Q.96. Pyrrole is less basic than piperidine because:

(A) Lone pair of N participates in aromaticity
(B) Pyrrole is larger
(C) Piperidine is aromatic
(D) None

Q.97. The Maillard reaction occurs between:

(A) Amino acids and reducing sugars (browning)
(B) Two sugars
(C) Two proteins
(D) Sugar and fat

Q.98. Mesomeric effect (+M) donates electrons to ring:

(A) OH, NH2, OR groups
(B) COOH, NO2
(C) Halogens only
(D) Alkyl groups

Q.99. Which bond is strongest?

(A) C-F (highest BDE among C-X bonds)
(B) C-Cl
(C) C-Br
(D) C-I

Q.100. Solid solution where solute occupies holes:

(A) Interstitial solid solution
(B) Substitutional solid solution
(C) Ionic crystal
(D) Covalent crystal

BOTANY

SECTION A

Q.101. The term 'ecology' was coined by:

(A) Ernst Haeckel
(B) Darwin
(C) Odum
(D) Tansley

Q.102. Which type of soil retains most water?

(A) Clay
(B) Sandy
(C) Loamy
(D) Gravel

Q.103. Totipotency means:

(A) Ability of cell to develop into whole organism
(B) Cell division
(C) Protein synthesis
(D) Cell specialization

Q.104. The phase of mitosis where chromosomes align at equatorial plate:

(A) Metaphase
(B) Anaphase
(C) Prophase
(D) Telophase

Q.105. Which of the following is a respiratory substrate?

(A) Glucose, fats, proteins (all organic compounds)
(B) CO_2
(C) Water
(D) Minerals

Q.106. Allelopathy is:

(A) Chemical inhibition between plants
(B) Symbiosis
(C) Predation
(D) Commensalism

Q.107. Biofortification improves crops with:

(A) Higher nutritional value
(B) Higher yield only
(C) Better taste
(D) Pest resistance

Q.108. The Bt toxin specifically kills insects by:

(A) Binding to gut receptors causing cell lysis
(B) Affecting nervous system
(C) Blocking food absorption
(D) Dehydration

Q.109. Meristematic cells are characterized by:

(A) Thin walls, dense cytoplasm, large nucleus
(B) Large vacuoles
(C) Chloroplasts
(D) Thick walls

Q.110. The enzyme RuBisCO fixes:

(A) CO_2 in Calvin cycle
(B) O_2
(C) H_2O
(D) N_2

Q.111. The biological magnification of DDT affects:

(A) Top carnivores most
(B) Producers most
(C) Herbivores most
(D) Equally all levels

Q.112. Endosymbiont theory explains origin of:

(A) Chloroplasts and mitochondria
(B) Nucleus
(C) Cell wall
(D) Vacuole

Q.113. The major reservoir of carbon is:

(A) Ocean (dissolved CO_2 and carbonates)
(B) Atmosphere
(C) Biosphere
(D) Fossil fuels

Q.114. Which of the following is a C3 plant?

(A) Wheat
(B) Maize
(C) Sugarcane
(D) Sorghum

Q.115. Mycoplasma lacks:

(A) Cell wall
(B) Cell membrane
(C) Ribosome
(D) DNA

Q.116. The Golgi apparatus is involved in:

(A) Protein modification and secretion
(B) ATP synthesis
(C) DNA replication
(D) Lipid catabolism

Q.117. Long-day plants flower when:

(A) Photoperiod exceeds critical day length
(B) Day is shorter than critical
(C) Temperature is low
(D) Day and night are equal

Q.118. Germplasm banks store:

(A) Seeds at low temperature
(B) Living plants
(C) Tissue cultures
(D) DNA only

Q.119. The energy used in active transport comes from:

(A) ATP hydrolysis
(B) Sunlight
(C) Chemical gradient
(D) Osmosis

Q.120. Which process produces the most ATP?

(A) Oxidative phosphorylation (electron transport chain)
(B) Glycolysis
(C) Substrate-level phosphorylation
(D) Fermentation

Q.121. The protein coat of a bacteriophage is called:

(A) Capsid
(B) Envelope
(C) Spike protein
(D) Peplomer

Q.122. Tropic movements in plants are:

(A) Growth responses to directional stimuli
(B) Non-directional
(C) Reversible movements
(D) Sleep movements

Q.123. The phospholipid bilayer is:

(A) Amphipathic (hydrophilic heads, hydrophobic tails)
(B) Entirely hydrophobic
(C) Entirely hydrophilic
(D) Protein-only

Q.124. Aneuploidy is change in:

(A) Chromosome number (not whole set)
(B) Gene mutation
(C) Chromosome structure
(D) Cytoplasm

Q.125. Commensalism is a relationship where:

(A) One benefits, other unaffected
(B) Both benefit
(C) One benefits, other harmed
(D) Both harmed

Q.126. Protein synthesis in prokaryotes initiates with:

(A) fMet-tRNA (formyl methionine)
(B) Met-tRNA
(C) Ala-tRNA
(D) Gly-tRNA

Q.127. The edaphic factors in ecology are related to:

(A) Soil characteristics
(B) Climate
(C) Biotic factors
(D) Water bodies

Q.128. Eutrophication is:

(A) Nutrient enrichment causing algal bloom
(B) Depletion of nutrients
(C) Acidification
(D) Salinization

Q.129. The operon model explains gene regulation in:

(A) Prokaryotes
(B) Eukaryotes
(C) Both equally
(D) Viruses

Q.130. Gene cloning requires:

(A) Restriction enzyme, ligase, vector, host cell
(B) Only restriction enzyme
(C) Only ligase
(D) Polymerase only

Q.131. Biofilm formation is seen in:

(A) Bacteria (community on surfaces)
(B) Viruses
(C) Plants
(D) Protozoa

Q.132. The quiescent center in root is:

(A) Region of slow-dividing cells at root tip
(B) Apical meristem
(C) Root cap
(D) Root hair zone

Q.133. The law of minimum was proposed by:

(A) Liebig
(B) Lotka
(C) Volterra
(D) Darwin

Q.134. In C4 plants, CO2 is fixed first in:

(A) Mesophyll cells (OAA by PEP carboxylase)
(B) Bundle sheath cells
(C) Guard cells
(D) Epidermis

Q.135. Crossing over in meiosis increases:

(A) Genetic variation in offspring
(B) Chromosome number
(C) Mutation rate
(D) Cell division rate

SECTION B

Q.136. Plasmolysis is:

(A) Shrinkage of protoplasm due to water loss
(B) Cell expansion
(C) Cell division
(D) Organelle movement

Q.137. Secondary succession occurs on:

(A) Previously inhabited disturbed area
(B) Bare rock
(C) Desert
(D) Ocean floor

Q.138. The term 'genome' refers to:

(A) Complete genetic material of organism
(B) Single gene
(C) Chromosome set
(D) mRNA only

Q.139. RAPD markers are:

(A) Random amplified polymorphic DNA (used in genotyping)
(B) Protein markers
(C) Chromosome markers
(D) Enzyme markers

Q.140. Monoclonal antibodies are produced by:

(A) Hybridoma technology
(B) B-cell culture
(C) T-cell activation
(D) Bacteria

Q.141. The Meselson-Stahl experiment demonstrated:

(A) Semi-conservative replication of DNA
(B) Conservative replication
(C) Dispersive replication
(D) RNA replication

Q.142. CRISPR-Cas9 is used for:

(A) Precise genome editing
(B) PCR amplification
(C) DNA sequencing
(D) Protein synthesis

Q.143. Bioinformatics tools help in:

(A) Analyzing genomic and proteomic data
(B) Cultivating crops
(C) Animal husbandry
(D) Ecology studies

Q.144. The Human Genome Project revealed approximately how many genes?

(A) 20,000-25,000 genes
(B) 3 million genes
(C) 100,000 genes
(D) 500,000 genes

Q.145. Autophagy is:

(A) Self-digestion of cellular components
(B) Cell death
(C) Cell division
(D) Protein synthesis

Q.146. Epigenetics studies:

(A) Heritable changes without DNA sequence change
(B) DNA mutations
(C) Chromosomal rearrangements
(D) Gene cloning

Q.147. The ENCODE project identified functional elements in:

(A) Human genome (beyond genes)
(B) Mouse genome
(C) Bacterial genome
(D) Viral genome

Q.148. Telomerase is active in:

(A) Cancer cells and stem cells
(B) All somatic cells
(C) Only neurons
(D) Only muscle

Q.149. Transposons were discovered by:

(A) Barbara McClintock
(B) Watson
(C) Crick
(D) Mendel

Q.150. SiRNA is used in:

(A) Gene silencing (RNAi pathway)
(B) Gene activation
(C) DNA repair
(D) Transcription initiation

ZOOLOGY

SECTION A

Q.151. Erythroblastosis fetalis occurs when:

(A) Rh-negative mother carries Rh-positive fetus
(B) Rh-positive mother carries Rh-negative fetus
(C) ABO mismatch
(D) Blood group A mother

Q.152. The pyloric sphincter separates:

(A) Stomach from small intestine
(B) Esophagus from stomach
(C) Small from large intestine
(D) Duodenum from jejunum

Q.153. Surfactant in lungs prevents:

(A) Alveolar collapse (reduces surface tension)
(B) Infection
(C) Gas exchange
(D) Blood flow

Q.154. Which ion is most important for resting membrane potential?

(A) K+ (high intracellular concentration)
(B) Na+
(C) Ca2+
(D) Cl-

Q.155. The foramen ovale in fetal heart connects:

(A) Right to left atrium
(B) Left to right atrium
(C) Ventricles
(D) Atria to ventricles

Q.156. Innate immunity includes:

(A) Skin barriers, fever, inflammation

(B) Antibodies
(C) T-cell responses
(D) B-cell memory

Q.157. The enzyme responsible for peptide bond formation is:

(A) Peptidyl transferase (23S rRNA)
(B) Aminoacyl tRNA synthetase
(C) Ribokinase
(D) Peptidase

Q.158. Sperm motility requires:

(A) ATP from mitochondria in midpiece
(B) Glucose only
(C) O2 directly
(D) NA+

Q.159. The outer layer of adrenal gland is:

(A) Cortex
(B) Medulla
(C) Capsule
(D) Inner zone

Q.160. Creatinine is a byproduct of:

(A) Muscle creatine phosphate metabolism
(B) Protein digestion
(C) Fat metabolism
(D) Carbohydrate metabolism

Q.161. Tachycardia refers to:

(A) Heart rate > 100 beats/min
(B) Heart rate < 60 beats/min
(C) Normal heart rate
(D) Irregular heartbeat

Q.162. Receptor for touch is called:

(A) Meissner's corpuscle
(B) Pacinian corpuscle
(C) Ruffini ending
(D) Free nerve ending

Q.163. The neural tube in embryo develops into:

(A) Brain and spinal cord
(B) Heart
(C) Gut
(D) Limbs

Q.164. Mature B-cells that secrete antibodies are called:

(A) Plasma cells

(B) Memory cells
(C) Helper T-cells
(D) Cytotoxic T-cells

Q.165. Insulin secretion is stimulated by:

(A) High blood glucose
(B) Low blood glucose
(C) Glucagon
(D) Cortisol

Q.166. The condition of excess uric acid is:

(A) Gout
(B) Diabetes
(C) Obesity
(D) Hypertension

Q.167. Leukemia is cancer of:

(A) White blood cells (bone marrow)
(B) Red blood cells
(C) Platelets
(D) Lymph nodes

Q.168. Erythrocyte sedimentation rate (ESR) increases in:

(A) Inflammation and infection
(B) Normal health
(C) Exercise
(D) Sleep

Q.169. The inguinal canal contains:

(A) Spermatic cord in males
(B) Ovary
(C) Uterus
(D) Bladder

Q.170. Which structure prevents regurgitation of food into esophagus?

(A) Lower esophageal (cardiac) sphincter
(B) Pyloric sphincter
(C) Ileocecal valve
(D) Anal sphincter

Q.171. Blood pressure is measured by:

(A) Sphygmomanometer
(B) Stethoscope
(C) ECG
(D) EEG

Q.172. The auditory ossicles in sequence are:

(A) Malleus - Incus - Stapes

(B) Incus - Malleus - Stapes
(C) Stapes - Malleus - Incus
(D) All the same

Q.173. The primary immunodeficiency Bruton's agammaglobulinemia affects:

(A) B-cells (no antibodies)
(B) T-cells
(C) NK cells
(D) Macrophages

Q.174. Cilia lining the respiratory tract move:

(A) Mucus and particles upward
(B) Air downward
(C) Blood
(D) Lymph

Q.175. Telomere shortening is associated with:

(A) Cellular aging (senescence)
(B) Cancer immortality
(C) DNA repair
(D) Gene activation

Q.176. The placenta secretes:

(A) HCG, progesterone, estrogen
(B) Only HCG
(C) Only progesterone
(D) Nothing

Q.177. Glucose is filtered and reabsorbed in:

(A) Proximal convoluted tubule
(B) Loop of Henle
(C) Distal convoluted tubule
(D) Collecting duct

Q.178. Fever is mediated by:

(A) Pyrogens acting on hypothalamus
(B) Direct bacterial action
(C) Virus action on muscles
(D) Allergy

Q.179. The ossification process converts:

(A) Cartilage to bone
(B) Bone to cartilage
(C) Muscle to bone
(D) None

Q.180. Sella turcica contains:

(A) Pituitary gland

(B) Hypothalamus
(C) Pineal gland
(D) Cerebellum

Q.181. Which is an example of active immunity?

(A) Vaccination
(B) Breast-feeding immunity
(C) Antiserum injection
(D) Maternal IgG

Q.182. The condition PKU is treated by:

(A) Phenylalanine-restricted diet
(B) Surgery
(C) Dialysis
(D) Transplantation

Q.183. Urea cycle occurs in:

(A) Liver
(B) Kidney
(C) Muscle
(D) Brain

Q.184. Type II pneumocytes produce:

(A) Surfactant
(B) Mucus
(C) Antibodies
(D) Enzymes

Q.185. The tunica albuginea is the outer covering of:

(A) Testis
(B) Ovary
(C) Kidney
(D) Adrenal gland

SECTION B

Q.186. Chromatin immunoprecipitation (ChIP) assay studies:

(A) Protein-DNA interactions in vivo
(B) RNA-protein interactions
(C) Cell surface proteins
(D) Enzyme kinetics

Q.187. The fluid mosaic model was proposed to describe:

(A) Cell membrane structure
(B) DNA structure
(C) Chromosome structure
(D) Ribosome structure

Q.188. HLA typing is important for:

(A) Organ transplant matching
(B) Blood transfusion
(C) Vaccine selection
(D) Drug dosage

Q.189. The number of genetically distinct gametes from 1 pair of homologs:

(A) 2^1 = 2 (but 2 chromosomes)
(B) 1
(C) 4
(D) 8

Q.190. Embryonic stem cells are:

(A) Pluripotent (from inner cell mass)
(B) Totipotent
(C) Multipotent
(D) Unipotent

Q.191. Natural killer cells kill:

(A) Virus-infected cells without prior sensitization
(B) Only bacteria
(C) Only parasites
(D) Only cancer cells

Q.192. The gene expression is regulated at:

(A) Transcription, translation, and post-translational levels
(B) Transcription only
(C) Translation only
(D) DNA level only

Q.193. Cornea transplant doesn't require HLA matching because:

(A) Cornea is avascular (no blood vessels)
(B) Cornea has no antigens
(C) Immune system ignores it
(D) None

Q.194. Osteogenesis imperfecta is due to:

(A) Defective collagen type I gene
(B) Calcium deficiency
(C) Vitamin D deficiency
(D) None

Q.195. The cardiac action potential plateau phase is due to:

(A) Ca2+ influx via L-type channels
(B) K+ efflux
(C) Na+ influx
(D) Cl- influx

Q.196. Splicing of pre-mRNA removes:

(A) Introns
(B) Exons
(C) 5' cap
(D) Poly-A tail

Q.197. The two-hit hypothesis of cancer was proposed by:

(A) Knudson (retinoblastoma)
(B) Watson
(C) Crick
(D) Varmus

Q.198. Lysosomal storage diseases are due to:

(A) Deficiency of lysosomal hydrolases
(B) Excess lysosomal enzymes
(C) Ribosome dysfunction
(D) Mitochondrial mutation

Q.199. The fluid in joint cavities is called:

(A) Synovial fluid
(B) Interstitial fluid
(C) Lymph
(D) Blood plasma

Q.200. Dendritic cells are most important for:

(A) Initiating adaptive immune response (APC)
(B) Phagocytosis
(C) Antibody production
(D) Cytotoxicity

ANSWER KEY — SQP-5

Physics

1. (a)	**2.** (a)	**3.** (a)	**4.** (a)	**5.** (a)	**6.** (a)	**7.** (b)	**8.** (a)
9. (a)	**10.** (a)	**11.** (a)	**12.** (a)	**13.** (c)	**14.** (a)	**15.** (a)	**16.** (a)
17. (a)	**18.** (a)	**19.** (a)	**20.** (a)	**21.** (a)	**22.** (a)	**23.** (a)	**24.** (a)
25. (a)	**26.** (a)	**27.** (a)	**28.** (a)	**29.** (a)	**30.** (a)	**31.** (a)	**32.** (a)
33. (a)	**34.** (a)	**35.** (a)	**36.** (a)	**37.** (a)	**38.** (a)	**39.** (a)	**40.** (a)
41. (a)	**42.** (a)	**43.** (a)	**44.** (a)	**45.** (a)	**46.** (a)	**47.** (a)	**48.** (a)
49. (a)	**50.** (a)						

Chemistry

51. (a)	**52.** (a)	**53.** (a)	**54.** (a)	**55.** (a)	**56.** (a)	**57.** (a)	**58.** (a)
59. (a)	**60.** (a)	**61.** (a)	**62.** (a)	**63.** (a)	**64.** (a)	**65.** (a)	**66.** (a)
67. (a)	**68.** (a)	**69.** (a)	**70.** (a)	**71.** (a)	**72.** (a)	**73.** (a)	**74.** (c)
75. (a)	**76.** (a)	**77.** (a)	**78.** (a)	**79.** (a)	**80.** (a)	**81.** (a)	**82.** (a)
83. (a)	**84.** (a)	**85.** (b)	**86.** (a)	**87.** (a)	**88.** (a)	**89.** (a)	**90.** (a)
91. (a)	**92.** (a)	**93.** (a)	**94.** (a)	**95.** (a)	**96.** (a)	**97.** (a)	**98.** (a)
99. (a)	**100.** (a)						

Botany

101. (a)	**102.** (a)	**103.** (a)	**104.** (a)	**105.** (a)	**106.** (a)	**107.** (a)	**108.** (a)
109. (a)	**110.** (a)	**111.** (a)	**112.** (a)	**113.** (a)	**114.** (a)	**115.** (a)	**116.** (a)
117. (a)	**118.** (a)	**119.** (a)	**120.** (a)	**121.** (a)	**122.** (a)	**123.** (a)	**124.** (a)
125. (a)	**126.** (a)	**127.** (a)	**128.** (a)	**129.** (a)	**130.** (a)	**131.** (a)	**132.** (a)
133. (a)	**134.** (a)	**135.** (a)	**136.** (a)	**137.** (a)	**138.** (a)	**139.** (a)	**140.** (a)
141. (a)	**142.** (a)	**143.** (a)	**144.** (a)	**145.** (a)	**146.** (a)	**147.** (a)	**148.** (a)
149. (a)	**150.** (a)						

Zoology

151. (a)	**152.** (a)	**153.** (a)	**154.** (a)	**155.** (a)	**156.** (a)	**157.** (a)	**158.** (a)
159. (a)	**160.** (a)	**161.** (a)	**162.** (a)	**163.** (a)	**164.** (a)	**165.** (a)	**166.** (a)
167. (a)	**168.** (a)	**169.** (a)	**170.** (a)	**171.** (a)	**172.** (a)	**173.** (a)	**174.** (a)
175. (a)	**176.** (a)	**177.** (a)	**178.** (a)	**179.** (a)	**180.** (a)	**181.** (a)	**182.** (a)
183. (a)	**184.** (a)	**185.** (a)	**186.** (a)	**187.** (a)	**188.** (a)	**189.** (a)	**190.** (a)
191. (a)	**192.** (a)	**193.** (a)	**194.** (a)	**195.** (a)	**196.** (a)	**197.** (a)	**198.** (a)
199. (a)	**200.** (a)						