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CEE Based Model Questions (Set-A)

**CEE 200 Most Probable MCQs prepared for MBBS, BDS & BSc Nursing
Aspirants**

Instruction:

Marking Scheme: +1 mark for each correct answer and -0.25 mark for each incorrect answer.

Zoology

40 MCQs | 4 options each

Questions

1. The basic unit of classification is:

- A. Genus
- B. Species
- C. Family
- D. Order

2. The presence of a water vascular system is characteristic of:

- A. Annelida
- B. Arthropoda
- C. Echinodermata
- D. Mollusca

3. Which of the following is a characteristic feature of Chordata?

- A. Jointed appendages
- B. Notochord
- C. Water vascular system
- D. Radial cleavage

4. Which phylum includes organisms having a pseudocoelom?

- A. Platyhelminthes
- B. Aschelminthes/Nematoda
- C. Annelida
- D. Arthropoda

5. Homologous organs are evidence of:

- A. Convergent evolution
- B. Divergent evolution
- C. Mutation only
- D. Artificial selection

6. The infective stage of *Plasmodium* introduced into humans by a female *Anopheles* mosquito is:

- A. Merozoite
- B. Gametocyte
- C. Sporozoite
- D. Ookinete

7. The sexual phase of the life cycle of *Plasmodium* occurs in:

- A. Human liver
- B. Human RBC
- C. Female *Anopheles* mosquito
- D. Human intestine

8. The most dangerous form of malaria is commonly associated with:

- A. *Plasmodium vivax*
- B. *Plasmodium malariae*
- C. *Plasmodium falciparum*
- D. *Plasmodium ovale*

9. The main function of typhlosole in earthworm is:

- A. Excretion
- B. Increasing absorptive surface area
- C. Respiration
- D. Reproduction

10. Excretion in earthworm occurs mainly through:

- A. Flame cells
- B. Malpighian tubules
- C. Nephridia
- D. Green glands

11. Earthworm possesses:

- A. Open circulation
- B. Closed circulation
- C. Double circulation
- D. No circulatory system

12. The main respiratory organ of an adult frog is:

- A. Gills only
- B. Lungs only
- C. Lungs and skin
- D. Trachea

13. The normal pacemaker of the human heart is:

- A. AV node
- B. SA node
- C. Bundle of His
- D. Purkinje fibres

14. The left ventricle has a thicker muscular wall because it:

- A. Receives blood from the lungs
- B. Pumps blood to the whole body
- C. Pumps blood only to the lungs
- D. Receives deoxygenated blood

15. The universal donor for red blood cell transfusion is generally considered:

- A. AB positive
- B. A positive
- C. O negative
- D. B negative

16. Which hormone primarily increases water reabsorption in the kidney?

- A. Insulin
- B. ADH
- C. Thyroxine
- D. Glucagon

17. Ultrafiltration of blood in the nephron occurs mainly in the:

- A. Loop of Henle
- B. Collecting duct
- C. Glomerulus
- D. Distal convoluted tubule

18. The functional unit of the kidney is:

- A. Neuron
- B. Nephron
- C. Alveolus
- D. Sarcomere

19. Fertilization in humans normally occurs in the:

- A. Uterus
- B. Cervix
- C. Vagina
- D. Ampulla of fallopian tube

20. Ovulation is primarily triggered by a sudden increase in:

- A. FSH
- B. LH
- C. Estrogen only
- D. Progesterone

21. The hormone responsible for lowering blood glucose concentration is:

- A. Glucagon
- B. Adrenaline
- C. Insulin
- D. Cortisol

22. The part of the brain primarily responsible for maintaining balance and coordination is:

- A. Cerebrum
- B. Medulla oblongata
- C. Cerebellum
- D. Hypothalamus

23. The structural and functional unit of the nervous system is:

- A. Nephron
- B. Neuron
- C. Axon
- D. Synapse

24. The oxygen-carrying pigment in human blood is:

- A. Myoglobin
- B. Haemoglobin
- C. Bilirubin
- D. Melanin

25. The Bohr effect refers to the effect of increased CO₂ concentration on:

- A. Increased haemoglobin affinity for oxygen
- B. Decreased haemoglobin affinity for oxygen
- C. Increased oxygen production
- D. Increased RBC formation

26. Maximum absorption of digested nutrients occurs mainly in the:

- A. Stomach
- B. Large intestine
- C. Small intestine
- D. Oesophagus

27. Which immunoglobulin is most abundant in human blood plasma?

- A. IgA
- B. IgE

- C. IgG
- D. IgM

28. The antibody that is particularly important in allergic reactions is:

- A. IgG
- B. IgA
- C. IgM
- D. IgE

29. The main function of platelets is:

- A. Oxygen transport
- B. Immunity
- C. Blood clotting
- D. Hormone transport

30. Simple squamous epithelium is best suited for:

- A. Protection from abrasion
- B. Diffusion
- C. Secretion of mucus
- D. Contraction

31. The connective tissue specialized for fat storage is:

- A. Areolar tissue
- B. Adipose tissue
- C. Cartilage
- D. Tendon

32. Tuberculosis is caused by:

- A. *Vibrio cholerae*
- B. *Mycobacterium tuberculosis*
- C. *Salmonella typhi*
- D. *Streptococcus pneumoniae*

33. The causative organism of cholera is:

- A. *Vibrio cholerae*
- B. *Plasmodium falciparum*
- C. *Entamoeba histolytica*
- D. *Salmonella typhi*

34. Vaccination generally provides:

- A. Passive natural immunity
- B. Active acquired immunity

- C. Passive artificial immunity
- D. Innate immunity only

35. Which cell is primarily responsible for antibody production?

- A. RBC
- B. Plasma cell
- C. Platelet
- D. Neutrophil

36. Which blood cells are mainly involved in cellular immunity?

- A. T lymphocytes
- B. RBCs
- C. Platelets
- D. Eosinophils

37. The hormone secreted by the posterior pituitary is:

- A. Growth hormone
- B. TSH
- C. ADH
- D. FSH

38. The main function of bile in digestion is:

- A. Digestion of proteins
- B. Emulsification of fats
- C. Digestion of carbohydrates
- D. Absorption of amino acids

39. During muscle contraction, calcium ions bind to:

- A. Myosin
- B. Actin
- C. Troponin
- D. Tropomyosin

40. The sliding filament theory explains:

- A. Transmission of nerve impulses
- B. Muscle contraction
- C. Blood clotting
- D. Kidney filtration

Set 2: Botany

40 MCQs | 4 options each

Questions

41. The primary structural component of the plant cell wall is:

- A. Glycogen
- B. Cellulose
- C. Chitin
- D. Pectin

42. The bond joining two amino acids is:

- A. Glycosidic bond
- B. Peptide bond
- C. Ester bond
- D. Phosphodiester bond

43. The organelle mainly responsible for aerobic cellular respiration is:

- A. Ribosome
- B. Chloroplast
- C. Mitochondrion
- D. Golgi body

44. The chief photosynthetic pigment in green plants is:

- A. Carotene
- B. Xanthophyll
- C. Chlorophyll-a
- D. Anthocyanin

45. Which plant group is commonly called the "amphibians of the plant kingdom"?

- A. Algae
- B. Bryophytes
- C. Pteridophytes
- D. Gymnosperms

46. The dominant generation in bryophytes is:

- A. Sporophyte
- B. Gametophyte
- C. Embryo
- D. Seed

47. Gymnosperms are characterized by:

- A. Enclosed seeds
- B. Naked seeds
- C. Absence of vascular tissue
- D. Absence of roots

48. The dominant generation in pteridophytes is:

- A. Gametophyte
- B. Sporophyte
- C. Zygote
- D. Endosperm

49. Double fertilization is characteristic of:

- A. Bryophytes
- B. Pteridophytes
- C. Gymnosperms
- D. Angiosperms

50. The primary source of energy for most ecosystems is:

- A. Soil
- B. Water
- C. Sunlight
- D. Minerals

51. Approximately what percentage of energy is transferred from one trophic level to the next?

- A. 1%
- B. 10%
- C. 50%
- D. 90%

52. Which ecological pyramid is always upright?

- A. Pyramid of numbers
- B. Pyramid of biomass
- C. Pyramid of energy
- D. All can be inverted

53. Accumulation of toxic substances at progressively higher trophic levels is called:

- A. Eutrophication
- B. Biomagnification
- C. Succession
- D. Mineralization

54. The gradual replacement of one community by another over time is:

- A. Mutation
- B. Ecological succession
- C. Migration
- D. Adaptation

55. DNA replication occurs during which phase of the cell cycle?

- A. G₁
- B. S
- C. G₂
- D. M

56. Crossing over occurs during:

- A. Prophase I of meiosis
- B. Metaphase II
- C. Anaphase I
- D. Telophase II

57. Crossing over results in:

- A. Reduction in chromosome number only
- B. Genetic recombination
- C. DNA destruction
- D. Asexual reproduction

58. Mendel's law of segregation states that:

- A. Alleles separate during gamete formation
- B. Genes always remain together
- C. Dominant genes destroy recessive genes
- D. All offspring are identical

59. A cross between an individual of unknown genotype and a homozygous recessive individual is:

- A. Back cross
- B. Test cross
- C. Dihybrid cross
- D. Reciprocal cross

60. The typical phenotypic ratio of a Mendelian dihybrid cross is:

- A. 1:1
- B. 3:1
- C. 9:3:3:1
- D. 1:2:1

61. When both alleles express themselves equally in a heterozygote, it is:

- A. Incomplete dominance
- B. Codominance
- C. Epistasis
- D. Mutation

62. Which tissue is mainly responsible for secondary growth?

- A. Apical meristem
- B. Lateral meristem
- C. Intercalary meristem
- D. Epidermis

63. The main function of xylem is transport of:

- A. Food
- B. Water and minerals
- C. Hormones only
- D. Proteins

64. Phloem mainly transports:

- A. Water
- B. Mineral salts
- C. Organic food
- D. Oxygen

65. The tissue providing flexible mechanical support to young plant parts is:

- A. Sclerenchyma
- B. Collenchyma
- C. Xylem
- D. Phloem

66. Loss of water vapour from aerial parts of plants is called:

- A. Respiration
- B. Transpiration
- C. Guttation
- D. Photosynthesis

67. Opening and closing of stomata is primarily regulated by:

- A. Guard cells
- B. Companion cells
- C. Sieve tubes
- D. Root hairs

68. The plant hormone most associated with cell elongation and phototropism is:

- A. Auxin
- B. Ethylene
- C. Absciscic acid
- D. Cytokinin

69. The hormone responsible for fruit ripening is:

- A. Auxin
- B. Gibberellin
- C. Ethylene
- D. Cytokinin

70. Gibberellins are particularly associated with:

- A. Fruit ripening
- B. Stem elongation and breaking dormancy
- C. Stomatal closure
- D. Leaf abscission

71. Absciscic acid generally promotes:

- A. Seed dormancy
- B. Cell division
- C. Fruit ripening
- D. Stem elongation

72. Photoperiodism refers to a plant's response to:

- A. Gravity
- B. Temperature
- C. Duration of light and darkness
- D. Water availability

73. The Calvin cycle occurs in the:

- A. Thylakoid membrane
- B. Stroma of chloroplast

- C. Cytoplasm
- D. Mitochondrial matrix

74. The light-dependent reactions of photosynthesis occur mainly in:

- A. Stroma
- B. Thylakoid membranes
- C. Nucleus
- D. Cytoplasm

75. The oxygen released during photosynthesis comes primarily from:

- A. CO₂
- B. Glucose
- C. Water
- D. Chlorophyll

76. The first stable product of CO₂ fixation in C₃ plants is:

- A. Pyruvic acid
- B. Oxaloacetic acid
- C. 3-phosphoglyceric acid
- D. Acetyl-CoA

77. The enzyme responsible for CO₂ fixation in the Calvin cycle is:

- A. Amylase
- B. RuBisCO
- C. Pepsin
- D. DNA polymerase

78. The powerhouse of a plant cell is:

- A. Chloroplast
- B. Mitochondrion
- C. Ribosome
- D. Vacuole

79. The middle lamella is mainly composed of:

- A. Cellulose
- B. Calcium pectate
- C. Chitin
- D. Lignin

80. Which structure regulates gas exchange in leaves?

- A. Trichome
- B. Stoma
- C. Lenticel only
- D. Root hair

Chemistry

50 MCQs | 4 options each

Questions

81. One mole of any substance contains approximately:

- A. 6.022×10^{20} particles
- B. 6.022×10^{23} particles
- C. 3.011×10^{23} particles
- D. 9.81×10^{23} particles

82. The empirical formula represents:

- A. Actual number of atoms
- B. Simplest whole-number ratio of atoms
- C. Molecular mass
- D. Structural arrangement

83. The limiting reagent is the reactant that:

- A. Has the greatest mass
- B. Is consumed first and limits product formation
- C. Has the highest molecular mass
- D. Remains after reaction

84. Which quantum number determines the shape of an orbital?

- A. Principal
- B. Azimuthal
- C. Magnetic
- D. Spin

85. The maximum number of electrons in one orbital is:

- A. 1
- B. 2
- C. 6
- D. 10

86. Pauli exclusion principle states that:

- A. Electrons fill lower energy orbitals first
- B. No two electrons in an atom have the same four quantum numbers
- C. Electrons occupy degenerate orbitals singly first
- D. Electrons cannot move between shells

87. Atomic radius generally decreases across a period because:

- A. Number of shells increases
- B. Effective nuclear charge increases
- C. Nuclear charge decreases
- D. Electrons disappear

88. Ionization energy generally:

- A. Decreases across a period
- B. Increases across a period
- C. Remains constant
- D. Becomes zero

89. The unusually high first ionization energy of nitrogen compared with oxygen is mainly due to:

- A. Nitrogen having fewer protons
- B. Half-filled p-subshell stability
- C. Oxygen having fewer electrons
- D. Nitrogen being a metal

90. The most electronegative element is:

- A. Oxygen
- B. Fluorine
- C. Chlorine
- D. Nitrogen

91. A bond formed by transfer of electrons is:

- A. Covalent
- B. Ionic
- C. Coordinate
- D. Metallic

92. The hybridization of carbon in methane is:

- A. sp
- B. sp^2
- C. sp^3
- D. dsp^2

93. The shape associated with sp^2 hybridization is:

- A. Linear
- B. Trigonal planar
- C. Tetrahedral
- D. Octahedral

94. According to Le Chatelier's principle, a system at equilibrium:

- A. Always moves toward reactants
- B. Opposes an imposed change
- C. Stops reacting completely
- D. Always produces equal amounts of products

95. Increasing pressure in a gaseous equilibrium generally shifts equilibrium toward:

- A. Side with more gas molecules
- B. Side with fewer gas molecules
- C. Both sides equally
- D. The catalyst

96. A solution with pH 3 has a hydrogen ion concentration of:

- A. 10^{-3} M
- B. 10^3 M
- C. 3 M
- D. 10^{-7} M

97. A buffer solution resists changes in:

- A. Temperature
- B. Pressure
- C. pH
- D. Volume

98. Oxidation is best defined as:

- A. Gain of electrons
- B. Loss of electrons
- C. Gain of protons only
- D. Loss of neutrons

99. Reduction involves:

- A. Loss of electrons
- B. Gain of electrons
- C. Increase in oxidation number
- D. Loss of hydrogen always

100. The oxidation number of oxygen in H_2O_2 is:

- A. -2
- B. -1
- C. 0
- D. +1

101. A catalyst:

- A. Changes equilibrium constant
- B. Increases activation energy
- C. Provides an alternative pathway with lower activation energy
- D. Is permanently consumed

102. For a first-order reaction, half-life is:

- A. Dependent on initial concentration
- B. Independent of initial concentration
- C. Always zero
- D. Equal to reaction rate

103. The strongest oxidizing halogen is:

- A. I_2
- B. Br_2
- C. Cl_2
- D. F_2

104. KMnO_4 contains manganese in oxidation state:

- A. +2
- B. +4
- C. +6
- D. +7

105. $\text{K}_2\text{Cr}_2\text{O}_7$ contains chromium in oxidation state:

- A. +2
- B. +3

- C. +6
- D. +7

106. A carbonate reacts with an acid to release:

- A. O_2
- B. H_2
- C. CO_2
- D. N_2

107. The metal present at the centre of the haem group of haemoglobin is:

- A. Mg
- B. Fe
- C. Ca
- D. Zn

108. The central metal ion in chlorophyll is:

- A. Fe
- B. Mg
- C. Cu
- D. Na

109. A ligand is a species that:

- A. Accepts neutrons
- B. Donates an electron pair to a central metal ion
- C. Always donates a proton
- D. Oxidizes every metal

110. Coordination number refers to:

- A. Oxidation state only
- B. Number of atoms
- C. Number of donor atoms directly bonded to the central metal
- D. Number of electrons in d-orbitals

111. The general formula of an alkane is:

- A. C_nH_{2n}
- B. C_nH_{2n+2}
- C. C_nH_{2n-2}
- D. C_nH_n

112. Alkenes typically undergo:

- A. Addition reactions
- B. Neutralization only
- C. Substitution only
- D. Nuclear reactions

113. Markovnikov's rule is mainly applied to addition of:

- A. H_2 to alkanes
- B. HX to unsymmetrical alkenes
- C. O_2 to alcohols
- D. Water to benzene only

114. The major product of addition of HBr to propene under normal conditions is:

- A. 1-bromopropane
- B. 2-bromopropane
- C. Propanol
- D. Propane

115. The functional group of alcohol is:

- A. $-CHO$
- B. $-OH$
- C. $-COOH$
- D. $-CO-$

116. The functional group of an aldehyde is:

- A. $-OH$
- B. $-COOH$
- C. $-CHO$
- D. $-NH_2$

117. The functional group of a ketone is:

- A. Internal carbonyl group
- B. Hydroxyl group
- C. Carboxyl group
- D. Amino group

118. Oxidation of a primary alcohol initially gives:

- A. Ketone
- B. Aldehyde
- C. Ether
- D. Alkane

119. Oxidation of a secondary alcohol generally gives:

- A. Aldehyde
- B. Ketone
- C. Carboxylic acid directly
- D. Alkane

120. Tollens' reagent is commonly used to identify:

- A. Alkanes
- B. Aldehydes
- C. Ethers
- D. Amines

121. Esterification is a reaction between:

- A. Alkane and alkene
- B. Alcohol and carboxylic acid
- C. Amine and alkane
- D. Aldehyde and ketone

122. Saponification is:

- A. Hydrogenation of alkene
- B. Alkaline hydrolysis of an ester
- C. Oxidation of alcohol
- D. Reduction of ketone

123. The functional group of carboxylic acids is:

- A. -OH
- B. -COOH
- C. -CHO
- D. -NH₂

124. Amino acids contain both:

- A. Hydroxyl and aldehyde groups
- B. Amino and carboxyl groups
- C. Ketone and ester groups
- D. Ether and hydroxyl groups

125. A peptide bond is formed between:

- A. Two sugars
- B. Two amino acids
- C. Two fatty acids
- D. Two nucleotides

126. Which nitrogenous base is present in RNA but not normally in DNA?

- A. Thymine
- B. Uracil
- C. Adenine
- D. Guanine

127. The major intermolecular force responsible for the unusually high boiling point of water is:

- A. Ionic bonding
- B. Hydrogen bonding
- C. Metallic bonding
- D. Coordinate bonding

128. The molarity of a solution is defined as:

- A. Moles of solute per kg solvent
- B. Moles of solute per litre of solution
- C. Grams of solute per litre solvent
- D. Moles of solvent per litre solution

129. The ideal gas equation is:

- A. $PV = nRT$
- B. $P = nRTV$
- C. $PT = nRV$
- D. $PV = RT/n$

130. At constant temperature, Boyle's law states:

- A. $P \propto V$
- B. $P \propto 1/V$
- C. $V \propto T$
- D. $P \propto T$

Physics

50 MCQs | 4 options each

Questions

131. The SI unit of force is:

- A. Joule
- B. Newton
- C. Watt
- D. Pascal

132. Which quantity is a vector?

- A. Distance
- B. Speed
- C. Displacement
- D. Mass

133. The slope of a velocity-time graph represents:

- A. Displacement
- B. Acceleration
- C. Momentum
- D. Force

134. For uniformly accelerated motion:

- A. $v = u + at$
- B. $v = u - at^2$
- C. $s = ut/a$
- D. $F = ma^2$

135. The range of a projectile on level ground is maximum when the angle of projection is:

- A. 30°
- B. 45°
- C. 60°
- D. 90°

136. Newton's first law is also known as the law of:

- A. Gravitation
- B. Inertia
- C. Momentum
- D. Acceleration

137. Newton's second law gives:

- A. $F = ma$
- B. $F = mv$
- C. $F = m/a$
- D. $F = a/m$

138. Linear momentum is:

- A. mv
- B. ma

- C. $\frac{1}{2}mv^2$
- D. mgh

139. The momentum of an isolated system remains constant according to:

- A. Newton's first law
- B. Conservation of momentum
- C. Conservation of energy
- D. Ohm's law

140. Centripetal acceleration is directed:

- A. Away from centre
- B. Towards centre
- C. Along tangent
- D. Vertically upward only

141. The force responsible for keeping a satellite in circular orbit around Earth is:

- A. Friction
- B. Electrostatic force
- C. Gravitational force
- D. Magnetic force

142. Work done by a force perpendicular to displacement is:

- A. Maximum
- B. Minimum but non-zero
- C. Zero
- D. Infinite

143. Kinetic energy of an object is:

- A. mv
- B. $\frac{1}{2}mv^2$
- C. mgh
- D. Fd^2

144. Escape velocity from Earth's surface is approximately:

- A. 1.12 km/s
- B. 11.2 km/s
- C. 112 km/s
- D. 0.112 km/s

145. Escape velocity depends on:

- A. Mass and radius of the planet
- B. Mass of escaping object only
- C. Colour of object
- D. Shape of object only

146. Specific heat capacity is the heat required to raise the temperature of:

- A. Any body by 1°C
- B. Unit mass of a substance by 1°C
- C. One mole by 10°C
- D. One kilogram by 100°C

147. An isothermal process occurs at constant:

- A. Pressure
- B. Volume
- C. Temperature
- D. Entropy only

148. An isobaric process occurs at constant:

- A. Temperature
- B. Pressure
- C. Volume
- D. Internal energy

149. The first law of thermodynamics is based on conservation of:

- A. Momentum
- B. Charge
- C. Energy
- D. Mass only

150. A process with no heat exchange with surroundings is:

- A. Isothermal
- B. Adiabatic
- C. Isobaric
- D. Isochoric

151. The efficiency of a Carnot engine increases when:

- A. Sink temperature increases while source remains fixed
- B. Source temperature increases while sink remains fixed
- C. Both temperatures become equal
- D. Source temperature decreases

152. Absolute zero corresponds approximately to:

- A. 0°C
- B. -273.15°C
- C. 273°C
- D. -100°C

153. Wave velocity is related to frequency and wavelength by:

- A. $v = f\lambda$
- B. $v = f/\lambda$
- C. $v = \lambda/f$
- D. $v = f + \lambda$

154. Sound waves in air are:

- A. Transverse
- B. Longitudinal
- C. Electromagnetic
- D. Polarized

155. Resonance occurs when:

- A. Driving frequency equals natural frequency
- B. Driving frequency is zero
- C. Amplitude is zero
- D. Wavelength is infinite

156. Total internal reflection occurs when light travels:

- A. From rarer to denser medium
- B. From denser to rarer medium with incidence angle greater than critical angle
- C. Only through vacuum
- D. At normal incidence

157. The SI unit of lens power is:

- A. Tesla
- B. Diopetre
- C. Weber
- D. Ohm

158. Myopia is corrected using:

- A. Convex lens
- B. Concave lens

- C. Cylindrical mirror
- D. Plane glass

159. Hypermetropia is corrected using:

- A. Concave lens
- B. Convex lens
- C. Plane mirror
- D. Prism only

160. The relation between focal length f (in metres) and lens power P is:

- A. $P = f$
- B. $P = 1/f$
- C. $P = f^2$
- D. $P = 2f$

161. Young's double-slit experiment demonstrates:

- A. Refraction only
- B. Interference
- C. Photoelectric effect
- D. Nuclear fission

162. Ohm's law is:

- A. $V = IR$
- B. $V = I/R$
- C. $R = VI$
- D. $P = IR$

163. If the length of a uniform wire is doubled while its area remains unchanged, its resistance becomes:

- A. Half
- B. Double
- C. Four times
- D. Unchanged

164. If the cross-sectional area of a wire is doubled, its resistance becomes:

- A. Double
- B. Half
- C. Four times
- D. Unchanged

165. Two identical resistors R connected in series have equivalent resistance:

- A. $R/2$
- B. R
- C. $2R$
- D. $4R$

166. Two identical resistors R connected in parallel have equivalent resistance:

- A. $2R$
- B. R
- C. $R/2$
- D. R^2

167. Electrical power is given by:

- A. $P = VI$
- B. $P = V/I$
- C. $P = IR$
- D. $P = I/R$

168. Kirchhoff's junction rule is based on conservation of:

- A. Energy
- B. Charge
- C. Momentum
- D. Mass

169. The magnetic force on a moving charge is maximum when its velocity is:

- A. Parallel to magnetic field
- B. Perpendicular to magnetic field
- C. Zero
- D. Opposite to gravity

170. Electromagnetic induction was experimentally demonstrated by:

- A. Newton
- B. Faraday
- C. Einstein
- D. Rutherford

171. Lenz's law determines the:

- A. Magnitude of charge
- B. Direction of induced current
- C. Resistance of conductor
- D. Speed of light

172. A transformer operates on the principle of:

- A. Electrostatic induction
- B. Mutual electromagnetic induction
- C. Photoelectric effect
- D. Nuclear induction

173. Coulomb's law states that electrostatic force is proportional to:

- A. Product of charges and inversely proportional to square of distance
- B. Sum of charges only
- C. Distance squared
- D. Mass of charges

174. Electric field intensity is defined as:

- A. Force per unit positive test charge
- B. Charge per unit force
- C. Work per unit mass
- D. Energy per unit time

175. Electric potential at a point is:

- A. Force per unit charge
- B. Work done per unit charge
- C. Charge per unit force
- D. Power per unit charge

176. In a uniform electric field, electric field and potential are related by:

- A. $E = -dV/dr$
- B. $E = V^2$
- C. $E = V + r$
- D. $E = Vr$

177. Inserting a dielectric between capacitor plates generally:

- A. Decreases capacitance
- B. Increases capacitance
- C. Makes capacitance zero
- D. Has no effect under all conditions

178. Energy stored in a capacitor is:

- A. CV
- B. $\frac{1}{2}CV^2$
- C. $2CV^2$
- D. C/V

179. Capacitors connected in parallel have equivalent capacitance:

- A. Less than every individual capacitance
- B. Equal to sum of capacitances
- C. Equal to reciprocal sum
- D. Always zero

180. In the photoelectric effect, increasing the frequency of incident light above threshold generally increases:

- A. Maximum kinetic energy of electrons
- B. Work function
- C. Electron rest mass
- D. Threshold frequency

MAT

20 MCQs | 4 options each

Questions

181. If 2, 4, 8, 16, __, the next number is:

- A. 20
- B. 24
- C. 32
- D. 36

182. Find the next number: 3, 6, 11, 18, 27, __

- A. 36
- B. 38
- C. 40
- D. 42

183. If CAT is coded as DBU, then DOG is coded as:

- A. EPH
- B. EOG
- C. FPH
- D. DPH

184. A person walks 5 km north and then 3 km east. What is the shortest distance from the starting point?

- A. 8 km
- B. 6 km

- C. $\sqrt{34}$ km
- D. 2 km

185. If all doctors are educated and some educated people are researchers, which conclusion is definitely valid?

- A. All doctors are researchers
- B. Some doctors are researchers
- C. All doctors are educated
- D. No doctors are researchers

186. A clock shows 3:00. What is the angle between the hour and minute hands?

- A. 30°
- B. 60°
- C. 90°
- D. 120°

187. If 5 workers complete a job in 12 days, assuming equal efficiency, how many days will 10 workers require?

- A. 3
- B. 5
- C. 6
- D. 8

188. A number is increased by 20% and then decreased by 20%. The final result is:

- A. Same as original
- B. 4% greater
- C. 4% less
- D. 8% less

189. The average of 10, 20, 30, 40 and 50 is:

- A. 25
- B. 30
- C. 35
- D. 40

190. If $x + 5 = 12$, x equals:

- A. 5
- B. 6
- C. 7
- D. 8

191. Find the odd one out:

- A. 2
- B. 3

- C. 5
- D. 9

192. If SOUTH is written as HTUOS, the coding method is:

- A. Alphabetical order
- B. Reverse order
- C. Alternate letters
- D. Shift by one

193. A father is 30 years older than his son. If the son's age is 10 years, father's age is:

- A. 20
- B. 30
- C. 40
- D. 50

194. A bag contains 3 red and 2 blue balls. The probability of drawing a red ball is:

- A. $\frac{2}{5}$
- B. $\frac{3}{5}$
- C. $\frac{1}{2}$
- D. $\frac{3}{2}$

195. If all squares are rectangles and all rectangles are quadrilaterals, then:

- A. All quadrilaterals are squares
- B. All squares are quadrilaterals
- C. No square is a quadrilateral
- D. Some rectangles are not quadrilaterals

196. Find the next term: A, C, F, J, O, ____

- A. S
- B. T
- C. U
- D. V

197. If 25% of a number is 40, the number is:

- A. 100
- B. 120
- C. 160
- D. 200

198. A train travels 120 km in 2 hours. Its average speed is:

- A. 40 km/h
- B. 50 km/h
- C. 60 km/h
- D. 80 km/h

199. If $P > Q$, $Q > R$ and $R > S$, then:

- A. $S > P$
- B. $P > S$
- C. $Q < S$
- D. $R > P$

200. A person facing north turns right, then right again. Which direction is the person facing?

- A. North
- B. South
- C. East
- D. West

__Best Wishes__