



CEE MODEL ENTRANCE EXAM

(SET-4)

Instructions:

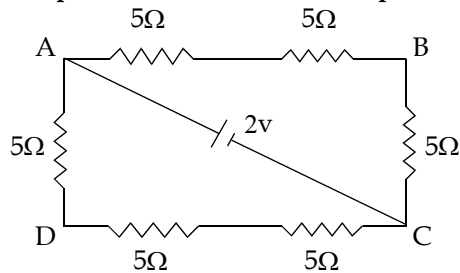
- There are 200 multiple-choice questions, each having four choices of which only one choice is correct.
- Fill (●) the most appropriate one.

Date : 2081/09/20
(Jan 04)

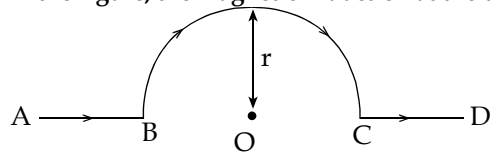
Duration : 3 hours
Time : 7 A.M. – 10 A.M.

- If a charge q is placed at the centre of the line joining two equal like charges Q , the system of three will be in equilibrium if q is
 - $-\frac{Q}{2}$
 - $-\frac{Q}{4}$
 - $+\frac{Q}{2}$
 - $+4Q$
- What is the flux through a cube of side 'a' if a point charge of q is at one of its corner?
 - $\frac{2q}{\epsilon_0}$
 - $\frac{q}{8\epsilon_0}$
 - $\frac{q}{\epsilon_0}$
 - $\frac{q}{2\epsilon_0} \cdot 6a^2$
- A spherical drop of capacitance $1\mu\text{F}$ is broken into eight drops of equal radius. The capacitance of each small drop is
 - $\frac{1}{2}\mu\text{F}$
 - $\frac{1}{4}\mu\text{F}$
 - $\frac{1}{8}\mu\text{F}$
 - $8\mu\text{F}$
- A wave is reflected from a rigid support. The change in phase on reflection will be
 - $\frac{\pi}{4}$
 - $\frac{\pi}{2}$
 - π
 - 2π
- If the tension and diameter of a sonometer wire of fundamental frequency 'f' are doubled and density is halved, then its fundamental frequency will become
 - $\frac{f}{4}$
 - $\sqrt{2}$
 - f
 - $\frac{f}{\sqrt{2}}$
- A sound source is moving towards a stationary observer with $\frac{1}{10}$ of the speed of sound. The ratio of apparent to real frequency is
 - $\frac{10}{9}$
 - $\frac{11}{9}$
 - $\left(\frac{11}{10}\right)^2$
 - $\left(\frac{9}{10}\right)^2$
- Boiling water is changing into steam. Under this condition specific heat of water is
 - 1
 - zero
 - < 1
 - ∞
- Two metallic rods of same length, same material, same area of cross-section are connected in (a) Series and (b) Parallel. The conductivity of the combination would be (K is conductivity of each rod)
 - $2K, \frac{K}{2}$
 - $\frac{K}{2}, 2K$
 - K, K
 - $2K, 2K$
- When you make ice cubes, the entropy of water
 - does not change
 - increases
 - decreases
 - may either increase or decrease depending on the process used
- An ideal gas is compressed to half of its initial volume by means of several process. Which of the process results in the maximum work done on the gas?
 - Isothermal
 - Adiabatic
 - Isobaric
 - Isochoric
- An ideal heat engine working between temperature T_1 and T_2 has an efficiency η . The new efficiency if both the source and sink temperatures are doubled, will be
 - $\frac{\eta}{2}$
 - η
 - 2η
 - 3η
- The temperature of a black body is increased by 50%, then the percentage increase of radiation is approximately
 - 100%
 - 25%
 - 400%
 - 500%
- If ω_e be the angular velocity of spin of earth, then find angular velocity of a geo-stationary satellite with respect to an observer on earth surface.
 - ω_e
 - $2\omega_e$
 - $\frac{\omega_e}{2}$
 - zero
- Which of the following is axial vector?
 - Force
 - Velocity
 - Electric field
 - Magnetic field
- A body is projected from ground surface with velocity 'u' at angle θ with horizontal. Find the time at which its velocity becomes perpendicular with initial direction.
 - $\frac{u}{g\cos\theta}$
 - $\frac{u}{g\cot\theta}$
 - $\frac{u}{g\sin\theta}$
 - $u\cot\theta$
- A cubical block is floating in water with 'h' depth immersed. If the system is moved vertically upward with acceleration the immersed depth becomes 'H'
 - $h < H$
 - $h > H$
 - $h = H$
 - $H \gg h$
- A tunnel is dug throughout the diameter of earth and a body is released from one end. If R is radius of earth, then find time period of oscillation.
 - 84.6 min
 - 1 hr
 - 24 hr
 - 1 min
- If external torque acting on a body is zero, then
 - Linear momentum is conserved
 - Angular momentum is conserved
 - K.E momentum is conserved
 - All of the above
- Viscosity of ideal fluid is
 - zero
 - ∞
 - finite but not zero
 - undefined
- When two or more soap bubbles come in contact, angle between contact interface is
 - 60°
 - 120°
 - 180°
 - 0°
- Total energy of satellite moving around earth is
 - positive
 - ve
 - zero
 - may be +ve, -ve & zero

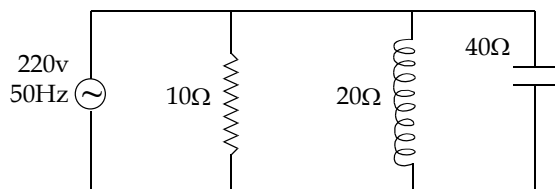
22. The sum of two unit vectors is unit vector. Find their difference
 a) 1 b) $\sqrt{2}$ c) $\sqrt{3}$ d) zero
23. Two plane mirrors are inclined to each other such that a ray of light incident on the first mirror and parallel to the second is reflected from the second mirror parallel to the first mirror. The angle between the two mirror is
 a) 30° b) 45° c) 60° d) 75°
24. Two plane mirrors are inclined to each other at an angle of 30° . The number of images of a point object held in between the mirror is
 a) 6 b) 12 c) 11 d) ∞
25. The phenomenon utilized in an optical fiber is
 a) refraction b) interference c) diffraction d) total internal reflection
26. Monochromatic light is refracted from air into the glass of refractive index μ . The ratio of the wavelength of incident and refracted wave is
 a) $1 : \mu$ b) $1 : \mu^2$ c) $\mu : 1$ d) $1 : 1$
27. In a concave mirror, an object is placed at a distance x_1 from focus and image is formed at a distance x_2 from focus. Then focal length of mirror is
 a) $\sqrt{x_1 x_2}$ b) $\frac{x_1 - x_2}{2}$ c) $\frac{x_1 + x_2}{2}$ d) $\sqrt{\frac{x_1}{x_2}}$
28. An air bubble in water behaves as
 a) concave lens b) convex lens
 c) sometimes concave, sometimes convex lens d) refracting surface only
29. If the length and area of cross-section of a conductor are doubled, then its resistance will be
 a) unchanged b) halved c) doubled d) quadrupled
30. The potential difference between points A and B is



- a) $\frac{2}{1}$ v b) $\frac{8}{9}$ v c) $\frac{4}{3}$ v d) 2v
31. In electrolyte, the current is due to
 a) motion of electron only b) motion of positive ions only
 c) motion of negative ions only d) motion of both positive and negative ions
32. The path executed by charged particle whose motion is perpendicular to a uniform magnetic field is
 a) a straight-line b) an ellipse c) a circle d) a helix
33. In the figure, the magnetic induction at the centre O of the arc due to the current in the portion AB will be



- a) $\frac{\mu_0 I}{r}$ b) $\frac{\mu_0 I}{2r}$ c) $\frac{\mu_0 I}{4r}$ d) zero
34. A vertical wire carrying a current in the upward direction is placed in a horizontal magnetic field directed towards north. The wire will experience a force directed towards
 a) North b) South c) East d) West
35. Net magnetic flux through any closed surface is always
 a) positive b) negative c) zero d) cannot say
36. A coil having an area 2m^2 is placed in a magnetic field which changes from 1 wb/m^2 to 4 wb/m^2 in an interval of 2 second. The emf induced in the coil will be
 a) 4v b) 3v c) 1.5v d) 2v
37. The value of conductance in adjoining circuit is

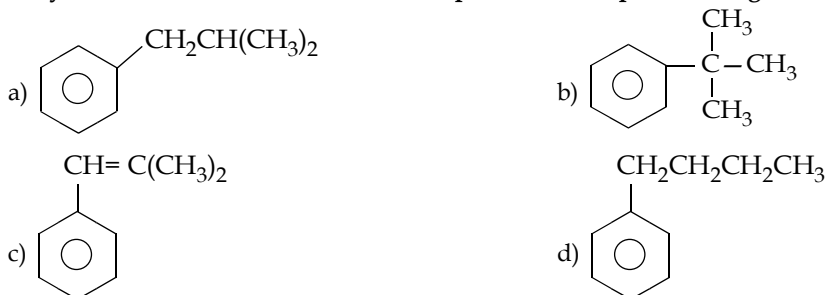


- a) 0.1 mho b) 0.025 mho c) 0.103 mho d) 9.7 mho

38. Specific charge is least for
a) α -particles b) proton c) positron d) positive meson
39. If work function of a metal surface is 2eV, its threshold wavelength of radiation is
a) 6100 nm b) 6100 Å c) 6188 nm d) 6188 Å
40. A photocell converts light energy into electrical energy by
a) ejecting photoelectrons b) decreasing resistance
c) developing emf d) none
41. If an electron and proton have same de-Broglie wavelength, then
a) the proton has greater momentum b) electron has greater momentum
c) both have zero momentum d) both have equal momentum
42. The spectral series of hydrogen which lies entirely in the ultraviolet part is
a) Lyman b) Paschen c) Balmer d) Pfund
43. The volume of nucleus is directly proportional to
a) A b) A^3 c) \sqrt{A} d) $A^{1/3}$
44. With the fall of temperature, the forbidden energy gap of semiconductor
a) increases b) decreases
c) remains unchanged d) sometimes increases and sometimes decreases
45. A semiconductor doped with a donor impurity is
a) p-type b) n-type c) npn type d) pnp type
46. In a semiconductor p-n junction, the avalanche breakdown occurs when
a) forward bias exceeds a certain value b) reverse bias exceeds a certain value
c) forward current exceeds a certain value d) the potential barrier is reduced to zero
47. The current gain in common base transistor is 0.95. This current gain of same transistor in common emitter mode is
a) 95 b) 45 c) 38 d) 19
48. The output is low when either of input is high, then this represents which of the following gates
a) OR b) NOR c) AND d) NAND
49. The tail of comet is due to
a) a cooling of water in the comet b) vaporization of heat in the comet
c) vaporization of water on comet d) sublimation of vapour in the comet
50. At what speed the kinetic energy of a particle is double to rest mass energy of particle?
a) $\frac{2c}{3}$ b) $\frac{3}{2}c$
c) $\frac{2\sqrt{2}c}{3}$ d) $\frac{3\sqrt{2}c}{2}$
51. The simplest formula of a compound containing 50% of element X (atomic mass 10) and 50% of element Y (atomic mass 20) is
a) XY b) X_2Y c) XY_3 d) X_2Y_3
52. Which of the following sets of quantum numbers is not permitted?
a) $n = 3, l = 3, m = 0, s = +\frac{1}{2}$ b) $n = 3, l = 2, m = +2, s = \frac{1}{2}$
c) $m = 3, l = 2, m = -2, -\frac{1}{2}$ d) $n = 3, l = 0, m = 0, s = +\frac{1}{2}$
53. Which of the following ionic radius would be maximum?
a) C^{4-} b) N^{3-} c) O^{2-} d) Mg^{2+}
54. The compound which contains ionic as well as covalent bonds is
a) $C_2H_4Cl_2$ b) CH_3I c) KCN d) H_2O_2
55. In the reaction, $SO_2 + 2 H_2S \rightarrow 3 S + 2 H_2O$, the substance oxidised is
a) H_2S b) SO_2 c) S d) H_2O
56. Each unit cell of NaCl consists of 13 Cl^- ions and
a) 13 Na^+ b) 14 Na^+ c) 6 Na^+ d) 4 Na^+
57. A catalyst in a finely divided state is more efficient because in this state
a) It has a larger activation energy
b) It can react with one of the reactants more efficiently
c) It has a large surface area
d) It has a low surface area
58. Blood has been found to be isotonic with
a) Conc. NaCl solution b) Very dil. NaCl solution
c) Normal saline solution d) Saturated NaCl solution
59. Increasing the temperature of an aqueous solution will cause
a) decrease in molality b) decrease in molarity
c) decrease in mole fraction d) decrease in % w/w
60. In which of the following case, does the reaction go farthest to completion?
a) $K = 10^2$ b) $K = 10$
c) $K = 10^{-1}$ d) $K = 1$
61. 0.45 g of acid of molecular weight 90 was neutralized by 20 mL of 0.5 N caustic potash. The basicity of the acid is
a) 1 b) 2 c) 3 d) 4

62. The conjugate acid of NH_2^- is
a) NH_4^+ b) NH_3 c) H_2H_4 d) NH_2OH
63. The pH of 0.1 M acetic acid solution is
a) < 0 b) > 1 c) 1 d) 7
64. An example of Lewis acid is
a) NaCl b) MgCl_2 c) CCl_4 d) AlCl_3
65. In the reaction $\text{A} + \text{B} \rightarrow \text{Products}$, If B is taken in excess, then it is an example of
a) second order reaction b) zero order reaction
c) pseudo unimolecular reaction d) first order reaction
66. 1 mole of H_2SO_4 is mixed with 2 moles of NaOH . the heat evolved will be
a) 57.3 kJ b) 2×57.3 kJ
c) $57.3/2$ kJ d) cannot be predicted
67. Which of the following will turn blue when placed in the copper vessel?
a) AgNO_3 b) aq. NaCl c) ZnSO_4 d) aq. $\text{Cd}(\text{NO}_3)_2$
68. Neutrino can be detected during the emission of
a) α -rays b) β -particles c) protons d) X-rays
69. In metallurgical process, aluminium acts as
a) an oxidizing agent b) reducing agent
c) a flux d) a solder
70. The method used to remove temporary hardness of water is
a) Calgon's method b) Clark's method
c) Synthetic resin method d) Ion exchange method
71. KO_2 is used in space craft and submarine because it
a) absorbs CO_2 and increases O_2 concentration
b) absorbs moisture
c) absorbs CO_2
d) produces ozone
72. Which out of the following represents Baryta?
a) BaSO_4 b) BaO c) $\text{Ba}(\text{OH})_2$ d) BaCO_3
73. Which of the following leaves no residue?
a) $\text{Pb}(\text{NO}_3)_2$ b) NH_4NO_3 c) $\text{Cu}(\text{NO}_3)_2$ d) NaNO_3
74. Colloidal solution of graphite in water is called
a) oil dag b) aquadag c) lamp black d) Anthracite
75. Which of the following does not react with water?
a) Boron b) Aluminium c) Sodium d) Thallium
76. The angular shape of molecule O_3 consists of?
a) 1 sigma bond and 1 pi bond b) 2 sigma bond and 1 pi bond
c) 1 sigma bond and 2 pi bond d) 2 sigma bond and 2 pi bond
77. The stability of dihalides of Si, Ge, Sn and Pb increases steadily in sequence
a) $\text{Pb X}_2 < \text{Sn X}_2 < \text{Ge X}_2 < \text{Si X}_2$ b) $\text{Ge X}_2 < \text{Si X}_2 < \text{Sn X}_2 < \text{Pb X}_2$
c) $\text{Si X}_2 < \text{Ge X}_2 < \text{Pb X}_2 < \text{Sn X}_2$ d) $\text{Si X}_2 < \text{Ge X}_2 < \text{Sn X}_2 < \text{Pb X}_2$
78. On strongly heating lead nitrate crystal, the gas which is evolved is?
a) NO_2 b) O_2 c) NO d) $\text{NO}_2 + \text{O}_2$
79. Superphosphate of lime contains
a) $\text{Ca}_3(\text{PO}_4)_2$ b) CaHPO_4 c) $\text{Ca}_3(\text{PO}_4)_2 + \text{H}_3\text{PO}_4$ d) $\text{Ca}(\text{H}_2\text{PO}_4)_2$
80. Bromine can be liberated from potassium bromide solution by action of
a) Iodine solution b) Chlorine water
c) Sodium chloride d) Potassium iodide
81. The gas which is used in air ship is
a) Ne b) He c) Ar d) Xe
82. Iron loses magnetic property at
a) Curie point b) Boiling point c) Melting point d) 1000 K
83. Systematic name of urea is
a) Diamino ketone b) 1-aminoethanamide
c) 1-aminoethanamide d) amino acetamide
84. The compound in which C uses its sp^3 hybrids orbital for bond formation is
a) HCOOH b) $(\text{NH}_2)_2\text{CO}$ c) $(\text{CH}_3)_3\text{C}-\text{OH}$ d) HCHO
85. Which of the following is an optically active compound
a) Buta-1, 3-diene b) Propadiene
c) Penta-2, 3-diene d) Penta-1,3-diene
86. Latest technique for purification, isolation and separation of organic substance is
a) distillation b) crystallization
c) sublimation d) chromatography
87. Treatment of RMgBr with $\text{R}'\text{C} \equiv \text{CH}$ produces
a) $\text{R}-\text{H}$ b) $\text{R}'-\text{H}$ c) $\text{R}-\text{R}$ d) $\text{R}-\text{R}'$

88. Alkylation of benzene with isobutene in presence of sulphuric acid gives



89. Which alkyl halide has maximum density?

- a) C₃H₇I b) C₂H₅I c) CH₃I d) CH₃Br

90. In their nucleophilic substitution reactions, aryl halides resemble

- a) vinyl chloride b) allyl chloride c) benzyl chloride d) ethyl chloride

91. How many structural isomers are possible for C₄H₁₀O?

- a) 4 b) 5 c) 6 d) 7

92. Picric acid is

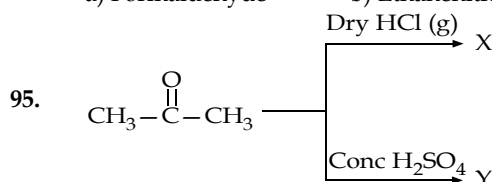
- a) 2, 4, 6-trinitrotoluene b) 2, 4, 6-trinitrobenzene
c) 2, 4, 6-trinitrophenol d) para-nitrophenol

93. Diethyl ether can be decomposed by

- a) HI b) NaOH c) Water d) KMnO₄

94. Which of the following compounds gives ketone with Grignard reagent?

- a) Formaldehyde b) Ethanenitrile c) Ethyl alcohol d) Ethyl acetate



X and Y are respectively

- a) mesityloxiide, phorone b) phorone, mesitylene
c) phorone, isophorone d) isophorone, mesitylene

96. Vinegar is

- a) 5% aqueous solution of acetic acid b) 20% alcoholic solution of acetic acid
c) 100% acetic acid d) 95% acetic acid

97. Ethanoic acid on reaction with hydrazoic acid (HN₃) yields

- a) ethylamine b) acetamide c) methylamine d) nitroethane

98. Reaction of CH₃CHO and aluminium ethoxide is called

- a) Tishchenko reaction b) Clemmensen's reaction
c) Perkin reaction d) Etard's reaction

99. Acetanilide finds application in medicine as

- a) Hypnotic b) Antiseptic
c) Antipyretic d) Rosenmund's reaction

100. Nylon 66 is not a

- a) condensation polymer b) co-polymer
c) polyamide d) homopolymer

101. Right atrium contains

- a) Oxygenated blood b) Deoxygenated blood
c) Mixed blood d) Plasma

102. The largest amount of CO₂ is transported by the blood in the form of

- a) CO₂ in the plasma b) Bicarbonate ions in plasma
c) H₂CO₃ in the plasma d) Bicarbonate ions in RBCs

103. The end product of fat digestion is

- a) Glycogen b) Glycerol c) Glucose d) Galactose

104. Stensen's duct is associated with

- a) Sublingual salivary gland b) Parotid salivary gland
c) Sub maxillary salivary gland d) Brunner's glands

105. Which of the following pairs does not match correctly in the context of embryonic development of frog?

- a) Cleavage- radial b) Gastrula-blastopore
c) Archenteron cavity - post gastrula stage d) Presumptive areas - blastula stage

106. Stratified squamous keratinized epithelium is seen in

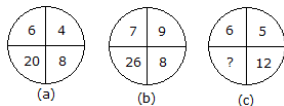
- a) Epidermis of skin b) Buccal cavity
c) Oesophagus d) Pharynx

107. The horizontal canals in the long bones of mammals are

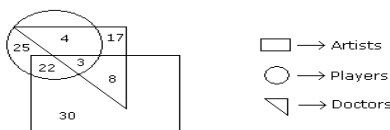
- a) Volkman's canals b) Haversian canals c) Canaliculi d) Neural canals

108. **Adipose tissue is commonly known as**
a) Loose connective tissue
b) Fat producing tissue
c) Fat storage tissue
d) Fluid connective tissue
109. **Which primitive man first use fire?**
a) African man
b) Java man
c) Proconsul
d) China man
110. **In his experiment on the formation of amino acids, Stanley Miller passed an electric discharge in a mixture of**
a) Steam, CH₄, H₂ and NH₃
b) CH₄, CO, O₂ and H₂
c) NH₃, O₂, H₂ and steam
d) CH₄, H₂, N₂ and steam
111. **Below are listed some pairs of characters. The homologous pair is**
a) Forelimbs of dogs and camel
b) Insect wing and bat wing
c) Feathers of birds and fins of fish
d) Lens of vertebrate and arthropod
112. **Bidder's canal is related to**
a) Kidney of male frog
b) Kidney of female frog
c) Testis of male frog
d) Ovary of female frog
113. **Spiral valve of the frog is found in**
a) Heart
b) Truncus arteriosus
c) Conus arteriosus
d) Bulbous arteriosus
114. **Aqueduct of Sylvius is a structure, which connects _____**
a) Lateral ventricle to 3rd ventricle
b) Paracoel to diocoel
c) Diocoel to metacoel
d) Paracoel to metacoel
115. **Geologically, one of the following eras is known as "Golden age of reptiles or Golden age of Dinosaurs"?**
a) Mesozoic
b) Cenozoic
c) Palaeozoic
d) Precambrian
116. **Which of the following combination is incorrect?**
a) Nematoda - Roundworms, Pseudocoelomate
b) Calcarea - Gastrovascular cavity, Coelom present
c) Echinodermata - Coelom present, radial symmetry
d) Platyhelminthes - Acoelomate, Flatworms
117. **Periplaneta belongs to which phylum?**
a) Mollusca
b) Arthropoda
c) Annelida
d) Echinodermata
118. **Cnidaria is characterized by**
a) Tissue level of organization
b) Nematoblasts
c) Coelenteron
d) Tissue level, Nematoblasts, Coelenteron
119. **Mesoderm gives rise to**
a) muscular tissue
b) CNS
c) urinary bladder
d) skin
120. **In which of the following the heart is not ventral in position?**
a) Fish
b) Frog
c) Lamprey
d) Silver fish
121. **Which of the following is a vertebrate organism?**
a) Cuttle fish
b) Cray fish
c) Devil fish
d) Flying fish
122. **Intermediate host of Ascaris is**
a) Human
b) Pig
c) Snail
d) Absence of intermediate
123. **Trematodes are commonly called**
a) Tapeworms
b) Flukes
c) Roundworms
d) Eddy worms
124. **The typhlosole in earthworm is related to**
a) Respiration
b) Excretion
c) Absorption
d) Reproduction
125. **In earthworm, the mouth is located on**
a) Stomium
b) Peristomium
c) Prostomium
d) Protostomium
126. **In earthworm, genital papillae are found in all segments in**
a) 10th and 11th
b) 17th and 19th
c) 11th and 12th
d) 19th and 21st
127. **Sporozoites of Plasmodium enter**
a) RBC of humans
b) Liver cells of humans
c) Stomach of mosquito
d) Salivary glands of mosquito
128. **Cryptozoites of Plasmodium are formed in**
a) Pre-erythrocytic cycle
b) Erythrocytic cycle
c) Exo-erythrocytic cycle
d) Sporogony
129. **Catadromous migration of fish migrates from**
a) Sea to freshwater
b) Fresh to sea water
c) Fresh to freshwater
d) Sea to seawater
130. **Animals walking on Hoofs or nails are called**
a) Plantigrade
b) Unguligrade
c) Digitigrade
d) Polygradae
131. **Thrush disease is caused by**
a) Mycobacterium
b) Vibrio comma
c) Candide spp
d) Streptococcus
132. **AIDS patient, which one is common?**
a) Cryptococcosis
b) Histoplasmosis
c) Cytomegalovirus
d) Tuberculosis
133. **Which of the following is not a Psychedelic drug?**
a) LSD
b) Marijuana
c) Charas
d) Caffeine
134. **Human sperm is divisible into head, body and tail regions, in which part of the sperm enzyme hyaluronidase is synthesized?**
a) Head of sperm
b) In the golgi bodies of acrosome
c) In the lysosome of acrosome
d) In the main body and tail region

164. The number of linkage group is equal to
 a) Haploid chromosome
 b) Haploid chromosome + 1
 c) Diploid chromosome
 d) Diploid chromosome + 1
165. Which element is not present in nucleosides?
 a) C
 b) H
 c) O
 d) P
166. Holandric genes are found in
 a) X chromosome
 b) Y chromosome
 c) XY chromosomes
 d) XX chromosomes
167. Restriction endonucleases
 a) Cut single strand of DNA
 b) Cut double strand of DNA
 c) Join the strands of DNA
 d) Cut RNA strand
168. The distantly related hybridization is
 a) Cauliflower and cabbage
 b) Radish and mustard
 c) Mustard and turnip
 d) Cabbage and turnip
169. Conducting tissues does not include
 a) Sieve tubes
 b) Tracheid
 c) Companion cells
 d) Medullary rays
170. Osmosis is measured by
 a) Hypodermis
 b) Root hairs
 c) Tracheary cells
 d) Auxanometer
171. Pigments system was proposed by
 a) Blackman
 b) Emersion et al.
 c) Robert Hill
 d) Joseph Priestly
172. Colour pigment found in vacuoles are
 a) Xanthophyll
 b) Carotenoids
 c) Phycobilin
 d) Anthocyanin
173. Bacterial mitochondria is
 a) Mesosome
 b) Mitochondria
 c) Chondroids
 d) Cytoplasm
174. Which is not needed during glycolysis?
 a) ATP
 b) NAD
 c) O₂
 d) Mg⁺⁺
175. Flowering hormone in short day plant is
 a) Auxins
 b) Gibberellins
 c) Cytokinin
 d) Ethylene
176. Syngamy is
 a) Mitosis
 b) Fertilization
 c) Cell division
 d) Meiosis
177. Anemophily is the pollination by
 a) Water
 b) Air
 c) Bees
 d) Beetle
178. Innermost nutritive layer of microsporangium is
 a) Endothecium
 b) Epidermis
 c) Middle layer
 d) Tapetum
179. Large group biofertilizers belongs to
 a) Fungi
 b) Algae
 c) Higher plants
 d) Microbes
180. Among these, which one is a product of Biotechnology?
 a) Skin
 b) Bacteria
 c) Plants
 d) Vaccine
181. Which number will replace the question mark?



- a) 23
 b) 25
 c) 27
 d) 29
182. If + means ÷, - means x, x means +, ÷ means -, then give the value for $45 + 9 - 3 \times 15 \div 2$
 a) 40
 b) 36
 c) 56
 d) 28
183. Jai is 15th from left and Vijay is 14th from right. When they interchange their positions respectively then Vijay becomes 21st from right end. What will be Jai's position from left after interchanging?
 a) 25
 b) 22
 c) 27
 d) 28
184. What is the angle made by hour hand in 1 hour 30 minutes?
 a) 30°
 b) 45°
 c) 90°
 d) 120°
185. Select the word from the given alternative which cannot be formed using the letters of the word "CHARACTER".
 a) TRACER
 b) CHARTER
 c) HEARTY
 d) CRATE
186. Study the given diagram and answer the following questions:

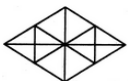


- How many artists are neither players nor doctors?
 a) 10
 b) 17
 c) 30
 d) 15
187. Eleven students A, B, C, D, E, F, G, H, I, J and K are sitting in first line facing to the teacher.
 i) D who is just to the left of F, is to the right of C at second place.
 ii) A is second to the right of E who is at one end.
 iii) J is the nearest neighbor of A and B and is to the left of G at third place.
 iv) H is next to D to the left and is at the third place to the right of I.
 Who is just in the middle?
 a) J
 b) I
 c) B
 d) G

188. **Statement:**
I. Lawyers marry only fair girls.
II. Samikshya is very fair.
Conclusions:
I. Samikshya is married to a lawyer. **II. Samikshya is not married to a lawyer.**
 a) Only conclusion I follows b) Only conclusion II follows
 b) Both conclusions I and II follow d) Either conclusion I or II follows
189. **Assertion (A): The earthworm reduces the fertility of the soil.**
Reason (R): They make the soil soft and porous.
 a) Both, A and R, are true and R is the correct explanation of A.
 b) Both, A and R, are true but R is not the correct explanation of A.
 c) If A is true but R is false.
 d) If A is false but R is true.
190. **A can do a work in 15 days and B in 20 days. If they work on it together for 4 days, then the fraction of the work that is left is:**
 a) $\frac{1}{4}$ b) $\frac{1}{10}$ c) $\frac{7}{15}$ d) $\frac{8}{15}$
191. **What is the product of all the numbers in the dial of a telephone?**
 a) 1,58,480 b) 1,59,450 c) 1,59,480 d) None of these
192. **The total number of digits used in numbering the pages of a book having 366 pages is**
 a) 732 b) 990 c) 1098 d) 1305
193. **The average of 7 consecutive numbers is 20. What is the largest of these numbers?**
 a) 20 b) 21 c) 23 d) 25
194. **In a mixture of 80 liters, the ratio of milk and water is 3:2. If the ratio is to be 2:3 the quantity of water to be further added is,**
 a) 40 b) 50 c) 60 d) 70

195. **Problem Figures:** **Answer Figures:**

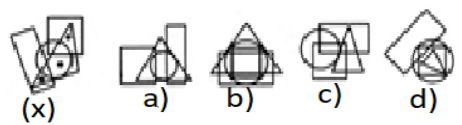
- (1) (2) (3) (4) (5) (a) (b) (c) (d)
196. **Find the number of triangles.**



- a) 22 b) 24 c) 28 d) 32
197. **Choose a box that is similar to the box formed from the given sheet of paper (X).**



- a) 1 and 2 only b) 2 and 3 only c) 2 and 4 only d) 1, 2, 3 and 4
198. **From amongst the figures marked (a), (b), (c) and (d), select the figure which satisfies the same conditions of placement of the dots as in figure (X).**



199. **Find out which of the answer figures (a), (b), (c) and (d) completes the figure matrix?**

a) b) c) d)

200. **Find the water image.**
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