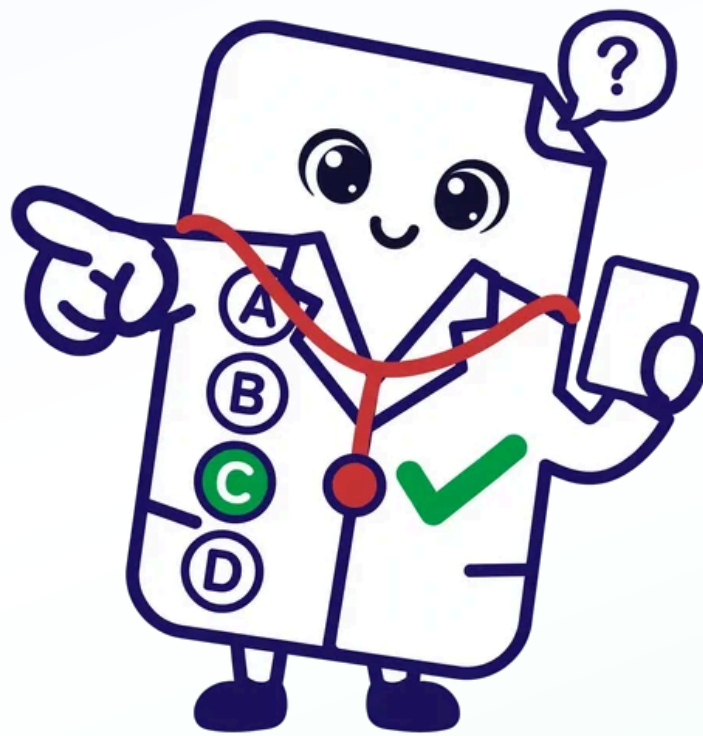




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A full model paper in the real MDCAT pattern, with answer key



180 MCQs

Real MDCAT subject split

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What is in this book

180 MCQs across one paper, each drawn in the same subject split as the real MDCAT paper:

- Biology: 81 MCQs per paper
- Chemistry: 45 MCQs per paper
- Physics: 36 MCQs per paper
- English: 9 MCQs per paper
- Analytical and Logical Reasoning: 9 MCQs per paper



MODEL PAPER 1 OF 1

Medical and Dental College Admission Test

180 MCQs · 180 minutes · answer key at the back



Biology

81 MCQs

1. The specific heat of vaporization of water plays an important role in the regulation of heat produced by:

- ☐ A Reduction
- ☐ B Oxidation
- ☐ C Redox
- ☐ D None of above

2. The oxygen bonding protein present in the skeletal muscles is:

- ☐ A Globin
- ☐ B Myoglobin
- ☐ C Myoglycogen
- ☐ D Glycogen

3. Internal program of events and sequences of morphological changes by which cell commit a suicide is collectively called:

- ☐ A Necrosis
- ☐ B Metastasis
- ☐ C Epistasis
- ☐ D Apoptosis

4. The cytoplasm contain(s):

- ☐ A Cell organelle only
- ☐ B Insoluble waste only
- ☐ C Storage products only
- ☐ D Cell organelle, insoluble waste and storage products

5. Non-competitive inhibitors react with enzymes at:

- ☐ A Allosteric site
- ☐ B Active site
- ☐ C Passive site
- ☐ D Regulatory site

6. Stroma of chloroplasts carries the fixation of

- ☐ A N₂
- ☐ B O₂
- ☐ C CO₂
- ☐ D NH₃

7. Which may NOT be a mode of action of an antibody?

- ☐ A Neutralizing an antigen
- ☐ B Precipitating an antigen
- ☐ C Secretion of cytokines
- ☐ D Enhancing phagocytosis

8. Bacteria living in the gut form the association of:

- ☐ A Mutualism
- ☐ B Predation
- ☐ C Parasitism
- ☐ D Commensalism

9. Which combination is an example of ball and socket joints:

- ☐ A Hip and shoulder joints
- ☐ B Hip and knee joints
- ☐ C Shoulder and knee joints
- ☐ D Hip and elbow joints

10. The molecule formed after first phosphorylation during glycolysis is:

- ☐ A Fructose-6-phosphate
- ☐ B Glucose-1-phosphate
- ☐ C Fructose-1, 6-bisphosphate
- ☐ D Glucose-6-phosphate

11. As a result of cross-fertilization of a pure breeding pea plant having purple coloured flowers; with that of white coloured flowers, the offsprings will have flowers with:

- ☐ A $\frac{1}{4}$ purple ; $\frac{3}{4}$ white
- ☐ B $\frac{1}{4}$ white ; $\frac{3}{4}$ purple
- ☐ C All white
- ☐ D All purple

12. Hippocampus plays an important role in the:

- ☐ A Formation of short-term memory
- ☐ B Formation of image on retina
- ☐ C Formation of long-term memory
- ☐ D Formation of emotions

13. A combination of alpha interferon and ribavirin is used for the treatment of hepatitis:

- ☐ A Hepatitis B
- ☐ B Hepatitis A
- ☐ C Hepatitis D
- ☐ D Hepatitis C

14. The simplest oxygen-producing organisms are:

- ☐ A Photosynthetic bacteria
- ☐ B Autotrophic bacteria
- ☐ C Cyanobacteria
- ☐ D Chlamydomonas

15. The technique used for the non-surgical removal of kidney stones is called:

- ☐ A Ultrasound
- ☐ B Lithotripsy
- ☐ C Dialysis
- ☐ D X-rays

16. An enzyme in the gastric juice of many infant mammals that precipitates milk protein is:

- ☐ A Rennin
- ☐ B Pepsinogen
- ☐ C Gastrin
- ☐ D Renin

17. Increased production of RBCs is called:

- ☐ A Leukaemia
- ☐ B Polycythemia
- ☐ C Edema
- ☐ D Anemia

18. Second major form of hepatitis is:

- ☐ A Hepatitis A
- ☐ B Hepatitis B
- ☐ C Hepatitis C
- ☐ D Hepatitis D

19. Who formulated the principle that "ontogeny recapitulates phylogeny"?

- ☐ A Von bear
- ☐ B Hackel
- ☐ C Herbert Spencer
- ☐ D Darwin

20. The tissue culture method occur in the following sequence:

- ☐ A Sterilization -> media preparation -> inoculation -> callus development -> plantlets
- ☐ B Media preparation -> sterilization -> inoculation -> callus development -> plantlets
- ☐ C Media preparation -> inoculation -> sterilization -> callus development -> plantlets
- ☐ D Inoculation -> sterilization -> media preparation -> callus development -> plantlets

21. _ is the branch of Biology used for the identification and interpretation of fossils.

- ☐ A Evolution
- ☐ B Paleontology
- ☐ C Zoogeography
- ☐ D Biodiversity

22. Which lipid is hydrophilic and soluble?

- ☐ A Triglycerides
- ☐ B Phospholipids
- ☐ C Waxes
- ☐ D Terpenoids

23. Hemoglobin can absorb maximum oxygen at sea level, which is _ ml/100 ml of blood.

- ☐ A 15
- ☐ B 19
- ☐ C 19.6
- ☐ D 20
- ☐ E 25

24. At the cephalic end of primitive streak, closely packed cells form a loci thickening known as:

- ☐ A Hensen's Node
- ☐ B Primitive Ridge
- ☐ C Gastrocoel
- ☐ D Primitive Gut

25. Nucleus was discovered by:

- ☐ A Waldyne
- ☐ B T.H. Margan
- ☐ C Robert Brown
- ☐ D Kohler

26. The optimum pH of pepsin is around:

- ☐ A 3
- ☐ B 3.5
- ☐ C 2
- ☐ D 2.5

27. Bulliform cells are present in:

- ☐ A Grasses
- ☐ B Under ground stems
- ☐ C Fruit-nuts
- ☐ D Cabbage leaves

28. Which one is correct about blood?

- ☐ A Will produce anti-Rh antibodies if given Rh* blood
- ☐ B Rh* antigens are present on RBCs
- ☐ C Cannot produce anti-Rh antibodies in any case
- ☐ D Rh* antibodies are present in blood

29. What is the drawback of nuclear energy?

- ☐ A It causes radiation pollution
- ☐ B It is very expensive
- ☐ C It is not long lasting
- ☐ D It pollutes the air

30. Immediate source of energy for muscle contraction is

- ☐ A Glucose
- ☐ B GTP
- ☐ C ATP
- ☐ D Creatine phosphate

31. Each molecule of NADH₂ entering the electron transport chain produces:

- ☐ A Four ATPs
- ☐ B Two ATPs
- ☐ C One ATP
- ☐ D Three ATPs

32. Base substitution, deletion and insertion are examples of:

- ☐ A Chromosomal aberration
- ☐ B Aneuploidy
- ☐ C Point mutation
- ☐ D Euploidy

33. Cortisone is an important hormone of

- ☐ A Adrenal cortex
- ☐ B Adrenal medulla
- ☐ C Cerebral cortex
- ☐ D Cerebral medulla

34. HIV destroys a type of defense cell in the body called _ helper lymphocyte.

- ☐ A TD4
- ☐ B T4
- ☐ C C4
- ☐ D CD4

35. Termites cut wood with the help of enzyme produced by

- ☐ A Trichonella
- ☐ B Tripanosoma
- ☐ C Trichonympha
- ☐ D Trichina

36. How many grams of nitrogen can be eliminated in form of uric acid by 50 ml of water?

- ☐ A 20
- ☐ B 30
- ☐ C 25
- ☐ D 50

37. At which site does digestion of starches begin?

- ☐ A 3
- ☐ B 7
- ☐ C 8
- ☐ D 12
- ☐ E 13

38. In fishes, the heart pumps:

- ☐ A Pure blood to body
- ☐ B Impure blood to body
- ☐ C Pure blood to gills
- ☐ D Impure blood to gills

39. Leydig cells found in testes are involved in secretion of

- ☐ A Inhibin
- ☐ B Testosterone
- ☐ C Luteinizing hormone
- ☐ D Nutrients

40. The modern horse is called:

- ☐ A Equus
- ☐ B Eohippus
- ☐ C Mesohippus
- ☐ D Merychippus

41. The DNA molecule formed from messenger-RNA by reverse transcriptase is called?

- ☐ A Complementary DNA
- ☐ B Recombinant DNA
- ☐ C Chimeric DNA
- ☐ D Plasmid DNA

42. Which of the following is the lowest level of biological organization with respect to others?

- ☐ A Multicellular organisms
- ☐ B Biosphere
- ☐ C Species
- ☐ D Population

43. Which of the following is a conjugated molecule?

- ☐ A Protein
- ☐ B Lipid
- ☐ C Glycoproteins
- ☐ D Vitamins

44. Amount of O₂ carried by red blood cells is:

- ☐ A 77%
- ☐ B 90%
- ☐ C 87%
- ☐ D 97%

45. A structure established between the uterine and foetal tissues for the exchange of oxygen, carbon dioxide, waste, nutrients and other materials is:

- ☐ A Amnion
- ☐ B Placenta
- ☐ C Endometrium
- ☐ D Uterus

46. Cyclosis and amoeboid movements are due to:

- ☐ A Microtubule
- ☐ B Cilia
- ☐ C Microfilaments
- ☐ D Intermediate filaments

47. All of the following are characteristics of enzymes except:

- ☐ A They increase the activation energy
- ☐ B They are specific in action
- ☐ C They possess specific active site
- ☐ D They possess dimensional shapes

48. _ did not have the adaptations to remove the flooding of their cells in fresh water.

- (A) Both B, D.
- (B) Hydrophytes
- (C) None of B, D.
- (D) Xerophytes.

49. Vaccination is an example of:

- (A) Natural passive immunity
- (B) Natural active immunity
- (C) Acquired/Artificial active immunity
- (D) Acquired/Artificial passive immunity

50. Excessive enrichment of water with nutrients by human activity by which large amount of living organic matter grows is called:

- (A) Archeotrophication
- (B) Eutrophication
- (C) Enrichment
- (D) Low Trophication

51. The living cells of cartilage are called:

- (A) Chondrocytes
- (B) Osteoblasts
- (C) Osteocytes
- (D) Osteoclasts

52. Glycolysis completes with the net gain of:

- (A) 2 ATP
- (B) 3 ATP
- (C) 4 ATP
- (D) 32 ATP

53. A gene which affects two or more unrelated characteristics is called

- (A) Pleiotropic
- (B) Epistatic
- (C) Dominant
- (D) Mutant

54. What does the cat show when it runs for its food dish upon hearing the food can opener?

- (A) Insight learning
- (B) Conditioning
- (C) Habituation
- (D) Imprinting

55. In viruses, a combined structure formed by the core (nucleic acid) and the capsid is:

- (A) Nucleocapsid
- (B) Prion
- (C) Envelope
- (D) Capsomeres

56. The flower of family gramineae (poaceae) contains two scales below-ovary, which are called:

- (A) glumes
- (B) lemma & palea
- (C) lodicules
- (D) rochilla

57. Maximum reabsorption takes place in which part of the nephron?

- (A) Distal Tubule
- (B) Villi
- (C) Cortical Tissue
- (D) Proximal Tubule

58. In which part of the human body the bacteria are normally present in abundance:

- (A) Salivary gland
- (B) Stomach
- (C) Intestine
- (D) Liver

59. The right atrium of the heart usually receives the

- (A) Deoxygenated Blood
- (B) Oxygenated Blood
- (C) Filtered Blood
- (D) Non-Filtered Blood

60. Menstruation, the shedding of the lining of the uterus (endometrium), is accompanied by:

- (A) Shivering
- (B) Fever
- (C) Bleeding
- (D) Vomiting
- (E) Headache

61. If all the members of a population are homozygous for the same allele, that allele is said to be:

- (A) Random in population's pool
- (B) Random in a species
- (C) Fixed in population's pool
- (D) Fixed in the gene pool

62. That 1st field trial of genetically engineered plants occurred in France and USA in:

- (A) 1980
- (B) 1982
- (C) 1984
- (D) 1986

63. In humans, the largest body organ is:

- (A) Liver
- (B) Skin
- (C) Brain
- (D) Lungs

64. Tay-Sach's disease is due to the presence of an enzyme that is inverted in the catabolism of:

- (A) Proteins
- (B) Ascorbic Acid
- (C) Carbohydrates.
- (D) Lipids

65. The following nasal passages are composed of cartilage except:

- (A) Trachea
- (B) Bronchus
- (C) Bronchioles
- (D) Tracheoles

66. A structure which is made up of both foetus and maternal tissue is known as:

- (A) Placenta
- (B) Umbilical cord
- (C) Amnion
- (D) Allantois

67. The size of ribosome in prokaryotic cell is:

- (A) 40S
- (B) 60S
- (C) 70S
- (D) 80S

68. Some enzymes require helper which is non-protein part for its efficient functioning that is called:

- ☐ A Accelerator
- ☐ B Cofactor
- ☐ C Prosthetic group
- ☐ D Apoenzyme

69. A set of xylem tissues are:

- ☐ A Vessels, tracheids, parenchyma
- ☐ B Sieve tubes, companion cells, fibers
- ☐ C Parenchyma, sieve tube, vessels
- ☐ D Fibers, companion cells, tracheids

70. Histamine is produced by which one of the following cells

- ☐ A Basophils
- ☐ B Platelets
- ☐ C Monocyte
- ☐ D Eosinophils

71. The distinct levels or links of food chain are called

- ☐ A Trophic level
- ☐ B Food web
- ☐ C Energy pyramid
- ☐ D Food chain

72. Major inorganic component of vertebrate bone is:

- ☐ A Calcium carbonate
- ☐ B Calcium phosphate
- ☐ C Potassium hydroxide
- ☐ D Calcium chloride

73. Cristea of mitochondria are the sites of:

- ☐ A Electron transport chain
- ☐ B Photophosphorylation
- ☐ C Krebs cycle
- ☐ D Glycolysis

74. Baldness is more common in males than in females because it is a

- ☐ A Sex-influenced trait
- ☐ B Sex-limited trait
- ☐ C Y-linked trait
- ☐ D Sex linked recessive trait

75. The concentration of sodium ions in body fluids is controlled by the hormone

- ☐ A Renin
- ☐ B Aldosterone
- ☐ C Angiotensin
- ☐ D CPK

76. First step of viral replication is:

- ☐ A Entry
- ☐ B Assembly
- ☐ C Uncoating
- ☐ D Adsorption or Attachment

77. In which of the following, does the pharynx opens directly into the intestine?

- ☐ A Planaria
- ☐ B Earthworm
- ☐ C Cockroach
- ☐ D Snail

78. The rare site of infection in urinary tract is:

- (A) Ureter
- (B) Urethra
- (C) Urinary bladder
- (D) Pelvis

79. Ptyalin can convert starch into:

- (A) Monosaccharide form
- (B) Oligosaccharide form
- (C) Polysaccharide form
- (D) All given options

80. The life span of RBC is:

- (A) 100 days
- (B) 110 days
- (C) 120 days
- (D) 130 days

81. After successful implantation of blastocyst into endometrium of uterus, level of which hormone increases?

- (A) Human chorionic gonadotrophin
- (B) Luteinizing hormone
- (C) Oxytocin
- (D) Progesterone



Chemistry

45 MCQs

82. Which one is the separating technique:

- (A) Deliquescence
- (B) Fluorescence
- (C) Phosphorescence
- (D) Solvent extraction

83. The enthalpy of the elements at 1 atm: pressure and 298 K is arbitrary given the value of:

- (A) 0.1
- (B) 1.0
- (C) 29.8
- (D) Zero

84. Mass spectrum of Magnesium shows that it contains three isotopes. Mg-24 (78.70%), Mg-25 (10.13%) & Mg-26(11.17%). The average atomic mass of Mg is

- (A) 24.32 amu
- (B) 25.32 amu
- (C) 26.32 amu
- (D) 27.32 amu

85. Plasma is the ionized gas mixture which consists of:

- (A) Ions and electrons
- (B) Electrons and neutral atoms
- (C) Electrons, ions and neutral atoms
- (D) Ions and neutral atoms

86. A nucleophile is

- (A) Lewis acid
- (B) Bronsted acid
- (C) Bronsted base
- (D) Lewis base

87. Which one of the following compounds will show covalent bonding?

- (A) CaF_2
- (B) MgO
- (C) KCl
- (D) H_2

88. The constancy of the e/m ratio of electrons shows that:

- (A) Electron mass is $1/87$ th of proton
- (B) Electrons are universal particles of all matter
- (C) Electrons are produced in discharge
- (D) None of the above

89. Reduction of benzene in presence of Ni gives:

- (A) Cyclohexane
- (B) Heterocyclic
- (C) Alicyclic
- (D) Unsaturated aliphatic

90. The longest bond is of:

- (A) H-I
- (B) H-O
- (C) H-S
- (D) H-Cl

91. Which of the following is not an air pollutant?

- (A) N_2
- (B) N_2O
- (C) NO
- (D) CO

92. _____ are product of reaction of an alcohol and aromatic bi-functional acids.

- (A) Acrylic resins
- (B) Polyester resins
- (C) PVCs
- (D) Polyamide resins

93. Select the nucleophile from the following examples:

- (A) NO_2
- (B) NH_3
- (C) NO_2^+
- (D) NH_4^+

94. How many oxygen atoms are present in 278g of Hydrated Ferrous Sulphate? ($\text{FeSO}_4 \cdot 7\text{H}_2\text{O} = 278$ any)

- (A) 6.023×10^{23}
- (B) 6.525×10^{24}
- (C) 2.408×10^{23}
- (D) 6.023×10^{22}

95. Which of the following is used to make chloral hydrate?

- (A) Acetaldehyde.
- (B) Formaldehyde.
- (C) None of these.
- (D) Both A and B.

96. Which of the following is NOT a member of transition metal?

- (A) Scandium family
- (B) Iron family
- (C) Titanium family
- (D) Beryllium family

97. Which one of the following is strongest acid?

- (A) $\text{CH}_2\text{Cl}-\text{CH}_2-\text{COOH}$
- (B) $\text{CHCl}_2-\text{COOH}$
- (C) CH_3-COOH
- (D) $\text{CH}_3-\text{CH}_2-\text{COOH}$

98. Water is not used as a thermometric liquid mainly because of:

- (A) Colorless
- (B) Is a bad conductor
- (C) Does not expand linearly
- (D) Has a low boiling point of 100°C

99. The crystals of _ are ionic solids

- (A) Sugar
- (B) Iron
- (C) Diamond
- (D) Na

100. 2.3g of ethanol ($\text{C}_2\text{H}_5\text{OH}$) is added to 500g of water to determine the molality of the resulting solution;

- (A) 0.01 molal
- (B) 0.1 molal
- (C) 1.1 molal
- (D) 1.0 molal

101. Which of the following statements best describes how a catalyst works

- (A) A catalyst changes the potential energies of the reactants and products
- (B) A catalyst decreases the temperature of the reaction which leads to a faster rate
- (C) A catalyst lowers the activation energy barrier for the reaction by providing a different reaction mechanism.
- (D) A catalyst raises the activation energy for the reaction which produces a faster rate

102. Which one of the following compounds show cis-trans isomerism?

- (A) 1-butene
- (B) 1-hexene
- (C) 1-bromo-2-chloropropene
- (D) Propene

103. Phenol has following characteristics and physical properties:

- (A) Colorless crystalline solid
- (B) White crystalline deliquescent solid
- (C) Colorless amorphous solid
- (D) Colorless amorphous deliquescent solid

104. Keeping in mind the electrode potential, which one of the following reactions is feasible?

- (A) $\text{Zn}^{2+} + \text{Cu} \rightarrow \text{Cu}^{2+} + \text{Zn}$
- (B) $\text{Zn} + \text{MgSO}_4 \rightarrow \text{ZnSO}_4 + \text{Mg}$
- (C) $\text{Fe} + \text{CuSO}_4 \rightarrow \text{FeSO}_4 + \text{Cu}$
- (D) $\text{Cd} + \text{MgSO}_4 \rightarrow \text{CdSO}_4 + \text{Mg}$

105. A buffer solution containing H_2CO_3 and NaHCO_3 is to be prepared to maintain a pH of 7.00. What must be the ratio NaHCO_3 in order to realize such a pH if K_a of carbonic HCO_3 acid is 4.3×10^{-7} ?

- (A) 43 (B) 48
(C) 0.43 (D) 4.3

106. Select the correct Zwitter ionic structures of an amino acid:

- (A) A (B) B
(C) C (D) D

107. Which is the best drying agent in desiccators?

- (A) KOH (B) Gypsum
(C) CaCl_2 (D) Silica sand

108. Specific heat of water is:

- (A) 4.18 J/g/°C (B) 9.82 J/g/°C
(C) 6.04 J/g/°C (D) 8.47 J/g/°C

109. Which compound will not give positive chromyl chloride test?

- (A) CuCl_2 (B) ZnCl_2
(C) HgCl_2 (D) $\text{C}_4\text{H}_9\text{NH}_4\text{Cl}$

110. The idea that molecules in gases are in constant movement is called:

- (A) Kinetic theory of gases (B) Crystal field theory
(C) Molecular orbital theory (D) Transition state theory

111. The number of ejected photoelectrons increases with increase. is strong electrolyte?

- (A) Ca(OH)_2 (B) SiCl_4
(C) KCl (D) SrCl_2

112. The bond angle in H_2S is less than H_2O due to:

- (A) Small size of oxygen atom
(B) Greater electronegativity of oxygen atom
(C) Oxygen contains 2 lone pair of electrons
(D) All of the above

113. In the main postulates of Bohr atomic theory the angular momentum of an electron in the hydrogen atom is given by the relationship.

- (A) $mvr = nh$ (B) $mvr = nh/2\pi$
(C) $mvr = n/2\pi$ (D) $mvr = nh/\pi$

114. In which of the following solvent are alkenes the most soluble?

- (A) Water
- (B) Ethyl alcohol
- (C) Ammonia
- (D) Carbon tetrachloride

115. Natural chlorine occurs as a mixture of isotopes if a mixture contains 75% Cl^{35} and 25% Cl^{37} what will be its correct atomic weight?

- (A) 35.50
- (B) 34.50
- (C) 72.00
- (D) 70.00

116. The incarnation process can reduce the volume of the water by:

- (A) One half
- (B) Not affected
- (C) One third
- (D) Two third

117. Choose group that cause solubility of the dye in acids.

- (A) $-\text{OH}$
- (B) $-\text{NH}_2$
- (C) $-\text{SO}_2\text{H}$
- (D) $-\text{COOH}$

118. When 2 - bromopropane is heated with concentrated alcoholic potassium hydroxide, the major product is:

- (A) Propene
- (B) Propan-1-ol
- (C) Propan-2-ol
- (D) Potassium Propoxide

119. Consider the reaction below, if 5 moles each of hydrogen and oxygen are reacted to form water, the reaction reveals: $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$

- (A) H_2 is the excess agent
- (B) O_2 is the limiting agent
- (C) H_2 is the limiting reagent
- (D) The reaction has no limiting reagent

120. Acetaldehyde undergoes oxidation to produce acetic acid. In this reaction the oxidizing agent used is:

- (A) HI
- (B) LiAlH_4
- (C) $\text{K}_2\text{Cr}_2\text{O}_7$
- (D) NaBH_4

121. The oxidation state of central metal (Mn) in the following complex $\text{Na}[\text{Mn}(\text{CO})_5(\text{F})_2]$ is:

- (A) +2
- (B) +3
- (C) -1
- (D) +1

122. The exact reactivity order for carboxylic acid derivatives is:

- (A) Anhydride > Acylchloride > ester
- (B) Ester > Anhydride > Acylchloride
- (C) Amide > Acylchloride > ester
- (D) Acylchloride > Anhydride > ester

123. Two ice blocks stick together due to:

- (A) London dispersion Forces
- (B) Dipole dipole forces
- (C) Hydrogen bonding
- (D) All of the above options are correct

124. Which one of the following has no cleavage plane?

- (A) Graphite
- (B) NaCl crystals
- (C) Copper crystals
- (D) Ice

125. 36 g of HCl dissolves in 100 g of solution. The density of HCl is 1.19 g cm^{-3} . The molar mass of the HCl solution will be:

- (A) 36.5 g/mol
- (B) 38.0 g/mol
- (C) 100 g/mol
- (D) 11.73 g/mol

126. $2A + B$ gives $3C + D$. Which of the following does not express the reaction rate?

- (A) $-d[B]/dt$
- (B) $d[D]/dt$
- (C) $-1/2 d[A]/dt$
- (D) $-1/3 d[C]/dt$



Physics

36 MCQs

127. The lifetime of an ordinary excited state is:

- (A) 10^{-35} sec
- (B) 10^{-8} sec
- (C) 10^{-3} sec
- (D) 0.1 sec

128. The magnetic field inside the current carrying wire varies

- (A) Inversely with r
- (B) Inversely with r^2
- (C) Directly with r^2
- (D) Directly with r

129. The unit of the electric field is:

- (A) N/C
- (B) V/m
- (C) J/C.m
- (D) All of the above

130. In transistor, the emitter current, is 3.5A and collector current, is 2.35A. What will be the base current?

- (A) 5.85A
- (B) 1.15A
- (C) 1.48A
- (D) 0.67A

131. The turbine in a steam power plant takes steam from a boiler at 427°C and exhausts into a low temperature reservoir at 77°C . What is the maximum possible efficiency?

- ☐ A 50%
- ☐ B 40%
- ☐ C 60%
- ☐ D 70%

132. A 3 V battery is connected in series with ammeter and 2 ohm resistance after short circuiting. What will be the reading of ammeter?

- ☐ A 1 A
- ☐ B 1.5 A
- ☐ C 5 A
- ☐ D 6 A

133. A 10 N force moves a body around a circular path of radius 50 cm. What is work done in completing one revolution?

- ☐ A 5 J
- ☐ B Zero
- ☐ C 31.42 J
- ☐ D 500 J

134. Lenz's law is based on the law of conservation of

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

135. Which type of electromagnetic radiation has the longest wavelength?

- ☐ A Gamma rays
- ☐ B UV
- ☐ C Microwave
- ☐ D X-rays

136. Suppose you drop an object from the roof of your house. It takes 2 seconds to reach the ground. What is the height of your house?

- ☐ A 10m
- ☐ B 20m
- ☐ C 5m
- ☐ D Insufficient information

137. The minimum number of unequal forces whose vector sum can be zero is

- ☐ A One
- ☐ B Two
- ☐ C Three
- ☐ D Four

138. The curved shape of an airplane wing causes air to move faster over the top surface. This leads to:

- ☐ A Greater pressure on the top
- ☐ B Lower pressure on the top
- ☐ C Equal pressure on both sides
- ☐ D Zero pressure above the wing

139. The time in which half of the given number of radioactive nuclei decay is known as

- ☐ A $1/2$ life of radioactive element
- ☐ B $2/3$ life of radioactive element
- ☐ C $1/4$ life of radioactive element
- ☐ D $2/5$ life of radioactive element

140. The number of photoelectrons emitted per second from the metal surface depends upon

- (A) Intensity of light
- (B) Frequency of light
- (C) Wavelength of light
- (D) Speed of light

141. For interference of light waves to take place, the required condition is:

- (A) The path difference of the light waves from the two sources must be large
- (B) The interfering waves must be non-coherent
- (C) The light waves may come from different sources
- (D) The light waves must come from two coherent sources

142. The speedometer of a car shows 36 km/hr. The angular speed of the wheels having 0.5m radius is:

- (A) 5 rad/sec
- (B) 10 rad/sec
- (C) 15 rad/sec
- (D) 20 rad/sec

143. The net magnetic field created by the electrons within an atom is due to the field created by their _ motion.

- (A) Orbital
- (B) Spin
- (C) Orbital & spin
- (D) Orbital X spin

144. A 2m wire carrying current 5A is at right angle to uniform magnetic field of 0.2 Web/m². The force on wire will be:

- (A) 5N
- (B) 4N
- (C) 2N
- (D) 1.5N

145. A capacitor which has a capacitance of 1 farad (F) will:

- (A) Be fully charged in 1 second by a current of 1 Ampere
- (B) Store 1 coulomb of charge at potential difference of 1 volt
- (C) Gain 1 joule of energy when 1 coulomb of charge is stored on it
- (D) Discharge in 1 second when connected across a resistor of resistance 3 ohms

146. Operational amplifiers can amplify:

- (A) AC only
- (B) DC only
- (C) Both AC and DC
- (D) None of them

147. The value of absolute zero on the Fahrenheit scale:

- (A) 359.4 °F
- (B) -459.4 °F
- (C) 100 °F
- (D) -259.4 °F

148. 2.00×10^6 e passing through a conductor in 1 millisecond. Electric current through conductor is:

- (A) 3.2×10^{-10} A
- (B) 32.0×10^{-9} A
- (C) 320×10^{-10} A
- (D) 0.320×10^{-10} A

149. Resistive forces are;

- (A) Nonconservative
- (B) Conservative
- (C) Both conservative and nonconservative
- (D) None of the above

150. A coil of 150 loops is pulled in 0.06s from poles of the magnet, which decreases the magnetic flux linked with the coil from 6×10^{-4} Wb to 2×10^{-4} Wb. The average emf induced in the coil is:

- (A) 1 V
- (B) 1.5 V
- (C) 0.1 V
- (D) 0.15 V

151. The sinusoidal AC in a circuit is $I = 50 \sin(20t)$. The peak value of the current is:

- (A) 100 A
- (B) 25 A
- (C) 50 A
- (D) 20 A

152. A projectile is launched in air with certain angle; its velocity is maximum at:

- (A) Point of projection
- (B) Highest point
- (C) Between launching and highest point
- (D) At all points

153. If $A, B = 1/2 AB$ then angle between A and B is

- (A) Zero
- (B) 30
- (C) 60
- (D) 90

154. One end of cylindrical pipe has a radius of 1.5cm, water stream (density = 1.0×10^3 kg/m³) steadily out at 7.0m/s, the volume rate is:

- (A) 4.9×10^{-3} m³/s
- (B) 4.9 m³/s
- (C) 7.0 m³/s
- (D) 49 m³/s

155. A nucleus emits gamma (γ) photon what happens to its atomic number and actual mass:

- (A) Atomic number and actual mass remain unchanged
- (B) atomic number and actual mass both decrease
- (C) atomic number and actual mass both increase
- (D) atomic number remains the same but the actual mass decrease

156. If 50 KV is the applied potential in an X-ray tube then the minimum wavelength of X-rays produced is:

- (A) 0.2 nm
- (B) 2 nm
- (C) 0.02 nm
- (D) 2 Å

157. To make frequency of spring oscillation four times, we have to:

- (A) Reduce mass to one fourth
- (B) Quadruple the mass
- (C) Reduce mass to one sixteenth
- (D) Double the mass

158. The direction of the angular velocity vector is along:

- (A) The tangent to the circular path
- (B) The axis of rotation
- (C) The outward radius
- (D) The inward radius

159. Hydrogen atom in the ground state absorbs energy from the incident photon. Which makes a transition to energy level characterized by $n=4$ the number of lines observed are:

- (A) 8
- (B) 4
- (C) 6
- (D) 10

160. The unit of magnetic flux density is:

- (A) Wb.m⁻²
- (B) Wb.m²
- (C) NAm⁻¹
- (D) NmA⁻¹

161. Electric field strength at position vector $r=(4i+3j)m$ caused by point charge $q=5\mu C$ placed at origin is:

- (A) $1440i+1080jV/m$
- (B) $1240i+1280jN/C$
- (C) $1440i+1080jN/C$
- (D) $1240i+1080jN/C$

162. A potential barrier of 0.7 volt exists across P- N junction made from:

- (A) Gallium
- (B) Indium
- (C) Germanium
- (D) Silicon



English

9 MCQs

163. Daud is better than _ of the college.

- (A) All teachers
- (B) Any teachers
- (C) All other teachers
- (D) Any teacher

164. The young lady was attracting a lot of negative attention at the party because she was wearing a _ silver gown.

- (A) Grim
- (B) Garnish
- (C) Gaudy
- (D) Gobsmacked

165. Choose the sentence that is grammatically correct:

- (A) He weighed himself maunds.
- (B) He weighed two maunds.
- (C) He weighed themselves two.
- (D) He weighed itself two maunds.

166. Which of the following sentences is grammatically incorrect?

- (A) Is this your jacket?
- (B) Whose jacket is this?
- (C) Is this jacket yours?
- (D) Who's jacket is this?

167. Your friend proved more sympathetic than I expected he _ do.

- (A) Will
- (B) Shall
- (C) Would
- (D) Should

168. 'Break the ice' Implies:

- (A) Walk on thin ice
- (B) Swallow ice-cubes
- (C) Chisel an ice-block
- (D) To make a beginning

169. In each of the following questions, four alternative sentences are given. Choose the CORRECT one and fill in the Circle corresponding to that letter in the MCQ Response Form.

- (A) They felt bad while leaving their friends.
- (B) They felt very badly about leaving their friends.
- (C) They felt badly about leaving their friends.
- (D) They felt badly while teaving their friends.

170. Fill in the blank with the correct option: Shah Jahan _ the great mosque at Delhi.

- (A) founded
- (B) raised
- (C) created
- (D) established

171. Select the correct indirect speech "Have you got a computer?" she said.

- (A) She wanted to find a whether I have a computer
- (B) She wanted to know whether I had a computer
- (C) She wanted to know if I could use a computer
- (D) She was interested to know about my computer



Analytical and Logical Reasoning

9 MCQs

172. What number comes next in the following series? 34 24 16 10 6

- (A) 5
- (B) 10
- (C) 3
- (D) 2
- (E) 4

173. P and Q are M's parents. M and N are siblings. Q is N's mother. What is P to M?

- (A) Mother
- (B) Father
- (C) Sister
- (D) Brother

174. A man walks 3 km northwards and then turns left and goes 2 km. He again turns left and goes on 3 km. He turns right and walks straight. In which direction he is walking?

- (A) East
- (B) West
- (C) North
- (D) South

175. In the following question, a statement is given followed by four inferences. You have to decide which of the given Inferences can definitely be drawn from the given statement. Indicate your answer. Statement: Most dresses in that shop are expensive. Inferences: I. Some dresses in that shop are expensive. II. There are cheap dresses also in that shop. III. Handloom dresses in that shop are cheap. IV. There are no cheap dresses available in that shop.

- (A) Only I follows
- (B) Only II follows
- (C) Only III follows
- (D) Only IV follows
- (E) None follows

176. I. The literacy rate in the district has been increasing. II. The district administration has conducted extensive training program for the workers involved in the literacy drive.

- (A) Statement I is the cause and statement II is its effect
- (B) Statement II is the cause and statement I is its effect
- (C) Both the statements I and II are independent causes
- (D) Both the statements I and II are effects of independent cause

177. If sum of the two numbers is -9 and their product is -36, then the numbers are:

- (A) 12, -3
- (B) -12, 3
- (C) -12, -3
- (D) 9, -4

178. Read the following statement, assuming everything in it to be true. Then decide which of the given suggested courses of action logically follow and are worth pursuing. Statement: "Aalia wants to sleep but cannot due to regular noise in and around her house everyday." Courses of Action: I. Insert good quality noise blockers into her ears. II, Take strong sleeping pills."

- (A) I
- (B) II
- (C) Both I and II
- (D) Neither I nor II

179. Statements: Some teachers are students. All students are girls. No student is a boy. Conclusions: I. Some teachers are boys. II. Same girls are teachers. III. Some girls are students.

- (A) Only I follows
- (B) Only I, II and III follow
- (C) Only II follows
- (D) Only II and III follow

180. Fact Checking: Fact 1: Some pens don't write Fact 2: Only blue pens write Fact 3: Some writing utensils are pens If the above three statements are facts then which of the following statement will also be a fact? I. Some writing utensils don't write II. Some writing utensils are blue III. Some blue writing utensils don't write

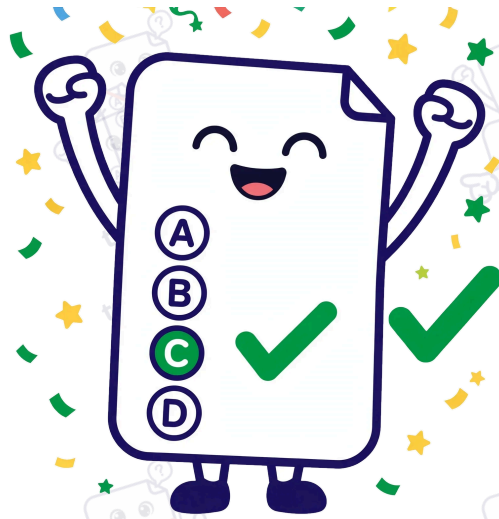
- ☐ A Only III ☐ B Only I and II
☐ C Only I ☐ D Only III and II

Answer key

Tap any answer to open its full explanation on TestUstad.

Model Paper 1

1	B	2	B	3	D	4	D	5	A	6	C	7	C	8	A	9	A	10	D
11	D	12	C	13	D	14	C	15	B	16	A	17	B	18	B	19	B	20	C
21	B	22	B	23	D	24	A	25	C	26	C	27	A	28	A	29	A	30	C
31	D	32	C	33	A	34	D	35	C	36	D	37	A	38	D	39	B	40	A
41	A	42	A	43	C	44	D	45	B	46	C	47	A	48	D	49	C	50	B
51	A	52	A	53	A	54	B	55	A	56	C	57	D	58	C	59	A	60	C
61	D	62	D	63	B	64	D	65	C	66	A	67	C	68	B	69	A	70	A
71	A	72	B	73	A	74	A	75	B	76	D	77	A	78	A	79	B	80	C
81	D	82	D	83	D	84	A	85	C	86	D	87	D	88	B	89	A	90	C
91	A	92	B	93	B	94	B	95	A	96	D	97	B	98	C	99	D	100	B
101	C	102	C	103	B	104	C	105	D	106	B	107	C	108	A	109	D	110	A
111	C	112	D	113	B	114	D	115	A	116	D	117	B	118	A	119	C	120	C
121	A	122	D	123	C	124	A	125	A	126	D	127	B	128	D	129	D	130	B
131	A	132	B	133	B	134	B	135	C	136	B	137	C	138	B	139	A	140	A
141	D	142	D	143	B	144	C	145	B	146	C	147	B	148	A	149	A	150	A
151	C	152	A	153	C	154	A	155	A	156	C	157	C	158	B	159	C	160	A
161	C	162	D	163	C	164	C	165	B	166	D	167	C	168	D	169	A	170	C
171	B	172	E	173	B	174	B	175	B	176	B	177	B	178	A	179	D	180	B



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