

ETEA MDCAT (KPK)

Total MCQs: 200

Max. Marks: 200

MDCAT-2022

Time Allowed: 210 Minutes (3-1/2 hours)

BIOLOGY

- Which one of the following is not the characteristic of viruses?
 - They do not respire.
 - They do not excrete.
 - They do not have the ability to reproduce
 - They can be crystallized.
- In 1935 W.M. Stanley prepared an extract of:
 - Tobacco mosaic virus (TMV)
 - Human immunodeficiency virus (HIV)
 - Flu virus
 - Polio virus
- Human immunodeficiency virus (HIV) particles surround with a coat known as the viral envelop or membrane made up of;
 - Glycoprotein
 - Glycolipid
 - Lipoprotein
 - Sulpholipid
- The word hepatitis means inflammation of the;
 - Pancreas
 - Liver
 - Spleen
 - Gall bladder
- The resting membrane potential of neuron is measured about:
 - 30 millivolts
 - 50 millivolts
 - 70 millivolts
 - 100 millivolts
- In aerobic respiration glucose molecule is completely broken down into carbon dioxide (CO₂), water (H₂O) and _____ energy.
$$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + ?$$
 - 2 ATP
 - 4 ATP
 - 34 ATP
 - 36 ATP
- The four types of fundamental biological molecules present in protoplasm are carbohydrates, proteins, lipids and _____.

- A. Enzymes
- B. Hormones
- C. Nucleic acids
- D. Alkaloids

8. Ribose is a pentose sugar (5-carbon) that contains:

- A. Aldehyde group
- B. Ketone group
- C. Carboxyl group
- D. Ester group

9. Proteins are macromolecules formed of units known as amino acids, the amino acids in which the variable group (R) is represented by an H atom is:

- A. Lysin
- B. Phenylalanine
- C. Glycine
- D. Alanine

10. The type of lipids which do not contain fatty acids are:

- A. Phospholipids
- B. Waxes
- C. Steroids
- D. Acylglycerol

11. In which part of the chloroplast the fixation of carbon dioxide results in the formation of Sugars?

- A. Grana
- B. Stroma
- C. Intergranum
- D. Outer membrane of chloroplast

12. The colloidal mixture of ions, organic and inorganic salts present in the nucleus is called;

- A. Nuclear membrane
- B. Nucleolus
- C. Nucleoplasm
- D. Chromosome

13. Those nerves that originate from or lead to the brain are called cerebral nerves.

There are _____ pairs of cerebral nerves in humans.

- A. 6
- B. 12
- C. 14
- D. 31

14. The hormone that triggers the release of milk in lactating women is:

- A. Growth hormone
- B. Antidiuretic hormone
- C. Oxytocin
- D. Follicle stimulating hormone

15. The group of animals having a single celled body which performs all the vital activities of life are called:
- A. Protozoa
 - B. Parazoa
 - C. Metazoa
 - D. Nanozoa
16. The word "Annelida" is of Greek origin; "annelus" means:
- A. Little ring
 - B. Segmented body
 - C. Thread
 - D. Hollow
17. Most of the coenzymes are the derivatives of;
- A. Lipid
 - B. Minerals
 - C. Steroids
 - D. Waxes
18. Genetic drift is change in the allele frequency of population due to;
- A. Random chance
 - B. Nonrandom mating
 - C. Natural selection
 - D. Artificial selection
19. The basis of Lamarck theory of inheritance is:
- A. Survival of the fittest
 - B. Selection by nature
 - C. Inheritance of acquired character
 - D. Theory of special creation
20. Which one of the following part of human respiratory system forms the gas exchange? surface?
- A. Trachea
 - B. Larynx
 - C. Bronchi
 - D. Alveoli
21. The average adult human has a lung capacity of approximately;
- A. 2 liters
 - B. 5 liters
 - C. 9 liters
 - D. 12 liters
22. The process of spermatogenesis (formation of sperm) takes place in which part of male reproductive system?
- A. Urethra
 - B. Epididymis
 - C. Oviduct
 - D. Seminiferous tubules

- 23. Which one of the following cells have haploid number of chromosome?**
- A. Sperm cell
 - B. Mesophyll cell
 - C. Skin cell
 - D. Muscular cell
- 24. Those joints in which the articulating bones are separated by a fluid-containing joint cavity are called:**
- A. Fibrous joints
 - B. Cartilaginous joints
 - C. Synovial joint
 - D. Immovable joint
- 25. The joints present in the elbow and knee are the example of which type of joint?**
- A. Immovable joint
 - B. Slightly movable joint
 - C. Hinge joint
 - D. Ball and socket joint
- 26. A man of blood group A marries a woman of blood group B and they have one child. Which one of the following statements about the child's blood is correct?**
- A. It could be group A only
 - B. It could be group AB only
 - C. It could be group A or group B only
 - D. It could be any of the groups A, B, AB and O
- 27. Red green colour blindness is a recessive sex linked trait that renders individuals unable to distinguish shades of red or green and both appear as:**
- A. Red
 - B. Green
 - C. Gray
 - D. Yellow
- 28. The statement "the membrane is like a sea of lipids in which proteins are floating" represents:**
- A. Gorter & Grendel Model
 - B. J F Danielle & Davison Model
 - C. Robertson Model
 - D. S J Singer and Nicholson Model
- 29. Detoxification of drug is the main role of:**
- A. Golgi bodies
 - B. Mitochondria
 - C. Rough Endoplasmic Reticulum
 - D. Smooth Endoplasmic Reticulum
- 30. The chloroplasts contain:**
- A. Proteins only
 - B. Ribosomes only
 - C. Small circular DNA only
 - D. Proteins, Ribosomes and small circular DNA

31. Mitochondria was first seen as granules in:

- A. White Blood cells
- B. Red blood cells
- C. Muscle cells
- D. Liver cells

32. Hemoglobin is a:

- A. Carbohydrate
- B. Protein
- C. Nucleic acid
- D. Enzyme

33. The glycerol is a _____ carbon compound:

- A. Three
- B. Four
- C. Five
- D. Six

34. Enzymes are in nature:

- A. Carbohydrates
- B. Proteins
- C. Lipids
- D. Vitamins

35. The range of visible light is from:

- A. 300-650 nm
- B. 350-700 nm
- C. 380-750 nm
- D. 430-790 nm

36. Which scientist among the following hypothesized that plant splits water to release oxygen as byproduct:

- A. Van Neil
- B. Lysenko
- C. Calvin
- D. Kreb

37. The Calvin cycle is completed in _____ stages:

- A. Two
- B. Three
- C. Four
- D. Five

38. Which of the following pairs of disease is caused by virus?

- A. Syphilis and TB
- B. Aids and Typhoid
- C. Measles and Mumps
- D. Tetanus and Cholera

39. The terminal portion of the male duct system is:

- A. Vasa efferentia
- B. Vasa deferens
- C. Urethra

D. Epididymis

40. The cell wall of bacteria is made up of:

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

41. Which one of the following is not a carnivorous plant?

- A. Pitcher plant
- B. Sundew
- C. Butterworts
- D. Money plant

42. All of the following are the characteristics of cartilage except:

- A. it is a type of connective tissue
- B. The precursor cells are chondrocytes
- C. it contains blood vessels
- D. it heals very slowly

43. Which one of the following is not related to Arthritis?

- A. Inflammation of joint
- B. An autoimmune disease
- C. The leading cause of disability in patients over the age of 65
- D. Inflammation of nerve

44. An exception to Mendel's law is:

- A. Linkage
- B. Dominance
- C. Purity of gametes
- D. Independent assortment

45. The hollow elongated tube formed when muscle fiber penetrates deep into the cell is known as:

- A. A tubule
- B. M tubule
- C. T tubule
- D. Z tubule

46. The type of neuron that carries nerve impulse from tissue and organ to the spinal cord and brain is:

- A. Sensory neuron
- B. Motor neuron
- C. Intermediate neuron
- D. Associative neuron

47. Hormones are usually:

- A. Genetical messengers
- B. Physical messengers
- C. Chemical messengers
- D. Biological catalyst

48. Which of the following lobes of the pituitary gland is known as master gland of the body?

- A. Anterior gland
- B. Posterior gland
- C. Intermediate gland
- D. Anterio-posterial gland

49. Which of the following hormones is responsible for reducing the blood glucose level?

- A. Thyroid hormone
- B. Insulin hormone
- C. Glucagon hormone
- D. ADH hormone

50. If the homozygous white eyed Drosophila female is crossed with red eyed Drosophila male, what is the probability of the male offspring having white color eye:

- A. 0%
- B. 25%
- C. 50%
- D. 100%

51. The term "survival of the fittest" was used by:

- A. Lamarck
- B. Darwin
- C. Herbert Spencer
- D. Mayr

52. The raw material that is used by natural selection for better survival is/are:

- A. Variation only
- B. Mutation only
- C. Similarity only
- D. Variation and mutation

53. The Archaeopteryx is a fossil bird which possesses the characters of both:

- A. Fishes and Amphibians
- B. Amphibians and Reptiles
- C. Reptiles and birds
- D. Birds and mammals

54. A condition characterized by hypothyroidism and enlargement of thyroid gland is known as:

- A. Graves disease
- B. Gigantism
- C. Goiter
- D. Exophthalmia

55. The percentage of carbon dioxide carried as carboxyhemoglobin is:

- A. 70%
- B. 23%
- C. 15%
- D. 7%

56. A small biological unit that can evolve over time is

- A. a specie
- B. a population
- C. an organism
- D. Cell

57. The most abundant element present in human body is

- A. Sulphur
- B. Nitrogen
- C. Carbon
- D. Manganese

58. Mammals become dominant in:

- A. Cenozoic Period
- B. Jurassic Period
- C. Mesozoic Period
- D. Paleozoic period

59. A hemoglobin molecule consists of Amino acids:

- A. 874
- B. 474
- C. 674
- D. 574

60. Steroid is formed by backbone of four fused carbon rings containing:

- A. 14 carbon atoms
- B. 16 carbon atoms
- C. 17 carbon atoms
- D. 18 carbon atoms

61. Portion of stomach which is present immediately after esophagus is known as

- A. Opsin portion
- B. Pyloric portion
- C. Gastric portion
- D. Cardiac portion

62. Rh antigen was first studied in

- A. Monkey
- B. Man
- C. Dog
- D. Mouse

63. What are the chances that the daughter of a normal man and a heterozygous female will have hemophilia?

- A. 75%
- B. 5%
- C. 25%
- D. 0%

64. The longest phase of the menstrual cycle is

- A. preovulatory phase
- B. secretory phase

- C. ovulatory phase
- D. menstrual phase

65. The most common protein in nature is

- A. Collagen
- B. rubisco
- C. DNAase
- D. Keratin

66. The hind brain is comprised of all of the following except:

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

67. The pasteurization of milk is done effectively through ultra-high temperature (UHT) in which milk is treated for 3 seconds at:

- A. 72°C
- B. 100°C
- C. 140°C
- D. 170°C

68. _____ is the attractive force between a water molecule and container.

- A. Cohesion
- B. Adhesion
- C. Tension
- D. Transpiration

PHYSICS

69. A body covers displacement of 10m towards North and returns back to initial point by covering 10m towards South, its total displacement is:

- A. 20m North
- B. 10m South
- C. 0m along North-South
- D. 0m

70. The unit of the kinetic energy is same as that of:

- A. Momentum
- B. Velocity
- C. Force
- D. Work

71. Which one is not a vector quantity?

- A. Angular displacement
- B. Impulse
- C. Moment of inertia
- D. Momentum

72. In Newton's first law of motion which quantity remains constant:

- A. Velocity
- B. Angular displacement

- C. Amplitude
- D. Amount of work

73. Law of inertia satisfies:

- A. Condition of equilibrium
- B. Condition of variable force
- C. Condition of force in contact
- D. Condition of conservation of mass

74. When five times momentum of a body is equal to the kinetic energy of the same body then its velocity is equal to:

- A. 5 m/s
- B. 10 m/s
- C. 15 m/s
- D. 20 m/s

75. When angular speed of a body is doubled, the centripetal acceleration becomes:

- A. Doubled
- B. Thrice
- C. Four times
- D. remains the same

76. A projectile is launched, its velocity is maximum at:

- A. Point of projection
- B. Highest point
- C. Between launching and highest point
- D. All points

77. The equation for kinetic energy is:

- A. $K.E = \frac{F}{2mv}$
- B. $K.E = \frac{1}{2}mv \cdot v$
- C. $K.E = \frac{1}{2}mv \cdot F$
- D. $K.E = \frac{1}{2}mv \cdot w$

78. Two bodies A and B of temperatures $T_A = 100^\circ\text{C}$ and $T_B = 0^\circ\text{C}$ are brought in thermal contact with each other. Which one in the following is possible at thermal equilibrium?

- A. $T_A = 0^\circ\text{C}$, $T_B = 100^\circ\text{C}$
- B. $T_A = 60^\circ\text{C}$, $T_B = 50^\circ\text{C}$
- C. $T_A = 45^\circ\text{C}$, $T_B = 45^\circ\text{C}$
- D. $T_A = 60^\circ\text{C}$, $T_B = 40^\circ\text{C}$

79. In an isolated thermodynamic system:

- A. No heat transfers to the environment
- B. Neither heat nor any mass are transferred to the environment
- C. No dissipated energy and heat are transferred to the environment
- D. No mass transfers to the environment

80. The energy stored in a capacitor is given by:

- A. $U = \frac{1}{2}QV^2$

- B. $U = \frac{1}{2} CV^2$
- C. $U = \frac{1}{2} QC$
- D. $U = \frac{Q}{2V}$

81. Two charges one of which is $Q_1 = 3\mu\text{C}$ and second one is $Q_2 = -1\mu\text{C}$ are separated by 100cm. The electric potential is zero at a point

- A. 25 cm from Q_2
- B. 75 cm from Q_2
- C. 50 cm from Q_1
- D. 33.3 cm from Q_1

82. Magnetic lines of force are:

- A. Imaginary lines which show actual magnetic field
- B. Actual lines which show actual magnetic field
- C. Imaginary lines which show imaginary magnetic field
- D. Actual lines which show imaginary magnetic field

83. Potential divider circuit is made when:

- A. Current is divided
- B. Emf source is divided
- C. Resistance is divided
- D. Number of electrons are divided

84. A conductor has resistance R. If its length is stretched to twice the actual value and its radius is reduced to one third of its original value, the new resistance will be:

- A. 3R
- B. 9R
- C. 18R
- D. 27R

85. Electricity consumption is calculated commercially in:

- A. Kilo-watt
- B. Kilo-watt hour
- C. Mega watt
- D. Giga watt

86. Two electric bulbs "A" and "B" of powers 500W and 2000W respectively are connected to 240V supply. The ratio of current passing through bulb "A" to the current passing through bulb "B" is:

- A. 1:2
- B. 1:4
- C. 1:8
- D. 1:16

87. A conductor has length equal to n meters and radius r meters. Its resistance will be equal to:

- A. $R = pr^{-1}$
- B. $R = pr^{-2}$
- C. $R = pr^{-3}$

D. $R = pr^{-4}$

88. A charged particle entered in a magnetic field anti parallel to the field, magnetic force on this particle is:

- A. BINA
- B. $BeV\sin\theta$
- C. Zero
- D. $iqlv$

89. When a neutron enters into a magnetic field B perpendicularly with velocity v , its acceleration is:

- A. Zero
- B. Centripetal
- C. Positive
- D. Uniform and non-zero

90. What is the inappropriate statement for step-up transformer?

- A. It increases given AC voltage
- B. It decreases given alternating current
- C. Heat is never produced in step-up transformer
- D. Its input energy is always less than its output energy

91. When two conductors each of resistance R are attached in series to external circuit, their net resistance is:

- A. R
- B. $2R$
- C. $3R$
- D. $4R$

92. An ideal AC generator has equal input and output, its heat dissipation will be:

- A. Of some finite value
- B. Zero
- C. Maximum
- D. Very much small

93. The unit of magnetic flux is:

- A. $NA^{-1}m$
- B. $NA^{-1}m^1$
- C. $NA^{-2}m^{-2}$
- D. Tesla

94. AC generator stops suddenly when:

- A. External voltage overcomes the back emf
- B. Torque of back emf exceeds the external torque
- C. Resistance of the coil produces heat
- D. Moment of inertia of the coil decreases

95. Output current of a half wave rectifier is:

- A. AC current
- B. Unidirectional current
- C. Zero always
- D. Straight line parallel to vertical axis

- 96. The resistance of full wave rectifier is:**
- A. Less than the resistance of half wave rectifier
 - B. More than the resistance of half wave rectifier
 - C. Equal to the resistance of half wave rectifier
 - D. Negligible in comparison to the resistance of half wave rectifier
- 97. An electron will have maximum kinetic energy when it has:**
- A. Long wavelength
 - B. Short wavelength
 - C. Low frequency
 - D. Circular motion
- 98. When AC is converted to DC, the process is called:**
- A. Magnification
 - B. Amplification
 - C. Rectification
 - D. Resolution
- 99. In pair annihilation two gamma ray photons created, travel in opposite direction not in the same direction, because:**
- A. This proves law of conservation of energy
 - B. This proves law of conservation of momentum
 - C. This proves law of conservation of charge
 - D. This proves law of conservation of mass-energy
- 100. The radiation emitted by warm blooded animals lies in the region of:**
- A. Visible
 - B. Ultraviolet
 - C. Infrared
 - D. X-rays
- 101. Which photon is travelling with largest speed in vacuum?**
- A. Gamma photon
 - B. Visible light photon
 - C. Infrared
 - D. All photons move with the speed of light.
- 102. The net displacement divided by the total time (t) is known as:**
- A. Instantaneous velocity
 - B. Uniform velocity
 - C. Average velocity
 - D. Variable velocity
- 103. The half-life of a radio-active sample predicts about:**
- A. Whole life of sample
 - B. Disintegration time of half number of atoms
 - C. Decay only
 - D. Total time for stable atoms
- 104. In a conducting electric wire, the electric current flows due to**
- A. Protons
 - B. Ions
 - C. Holes

- D. Electrons
105. **The shortest possible wavelength is**
- A. Lyman series
 - B. Balmer series
 - C. Paschen series
 - D. Brackett series
106. **Which radiation cannot be generated under electron transitions in different orbits?**
- A. Infrared
 - B. Ultraviolet
 - C. X-rays
 - D. Y-rays
107. **Radioactivity does not depend upon:**
- A. Initial number of atoms
 - B. Temperature
 - C. Nature of material
 - D. Time
108. **Which one is not the unit of radio-activity?**
- A. Bq
 - B. Ci
 - C. Decay/second
 - D. Tesla/m²
109. **Curie is the unit of:**
- A. Radioactivity
 - B. Temperature
 - C. Half life
 - D. Transition of magnetism
110. **Which one is stable element in the following?**
- A. Lead
 - B. Plutonium
 - C. Radium
 - D. Protactinium
111. **In physics it is observed that when matter and anti-matter combine, they form:**
- A. Particles with zero charge
 - B. Particles with positive charge
 - C. Particles with negative charge
 - D. Particles with Dual mass
112. **The longest wavelength observed in balmer series is:**
- A. $36R/5$
 - B. $36R/7$
 - C. $36R/11$
 - D. $36R/13$
113. **The shortest wavelength of Lyman series is ($R_x = \text{Rydberg Constant.}$)**
- A. RH
 - B. $1/RH$

- C. $3RH$
D. $5/RH$
114. For the treatment of cancer, the source of gamma rays used, is:
A. Co-60
B. Iodine 126
C. Na-15
D. Pb-207
115. The velocity time graph of a motion starting from rest with uniform acceleration is a Straight line:
A. Not passing through origin
B. Parallel to time axis
C. Parallel to velocity axis
D. Passing through origin
116. A projectile is thrown at an angle of 45° with horizontal and its range is R_1 . Another projectile is thrown at an angle of 45° with vertical and its range is R_2 . The relation between R_1 and R_2 is:
A. $R_2 = 2R_1$
B. $R_1 = 2R_2$
C. $R_1 = R_2$
D. $3R = R_2$
117. A cyclist comes to a skidding stop in 10m. During this process, the opposing force on the cycle due to the road is 200 N. How much work does the road do on the cycle?
A. -1800J
B. -2000J
C. 2000J
D. 1900J
118. The energy of simple harmonic oscillator at a displacement "x" is partly kinetic and partly potential. The total energy of a simple harmonic oscillator remains constant everywhere. Which one of the following option will be correct about the simple harmonic oscillator?
A. Kinetic energy is maximum at extreme position
B. Potential energy is maximum at extreme position
C. Both kinetic and potential energies are minimum at mean position
D. Potential energy is maximum at mean position
119. The speed of a wave on a particular string is 24ms^{-1} . If the string is 6.0m long, to what driving frequencies will it resonate?
A. 1Hz, 2Hz, 3Hz
B. 2Hz, 4Hz, 6Hz
C. 3Hz, 6Hz, 9Hz
D. 5Hz, 10Hz, 15Hz

120. The apparent change in the frequency of sound caused by the relative motion of either the source of sound or listener or both is called:
- A. Compton effect
 - B. Zeeman effect
 - C. Stark effect
 - D. Doppler effect
121. The time period of a simple pendulum with mass m , is T . When the pendulum's mass m is replaced by another ball of mass 3 times the older mass such that the length of pendulum is not changed then its new time period will be:
- A. T
 - B. $3T$
 - C. $T/3$
 - D. $2T$
122. The velocity of a wave is v , its time period is T and f is its frequency. Then the correct equation for frequency is:
- A. $T = vf$
 - B. $1f = v+T$
 - C. $1f = 1/T$
 - D. $T = v/T$

CHEMISTRY

123. Which of the following contains the same number of molecules as 22 gram of carbondioxide?
- A. 9g of water
 - B. 2g of hydrogen gas
 - C. 32g of oxygen gas
 - D. 71g of chlorine gas
124. Molecular mass of the compound is 60 and its empirical formula is CH_2O . What will be the molecular formula of the compound?
- A. $\text{C}_6\text{H}_{12}\text{O}_6$
 - B. $\text{C}_2\text{H}_4\text{O}_2$
 - C. $\text{C}_2\text{H}_6\text{O}_2$
 - D. $\text{C}_2\text{H}_8\text{O}_2$
125. Greater the wavelength associated with the photon:
- A. Greater is its energy
 - B. Smaller is its energy
 - C. its energy will be variable
 - D. Its energy will remain constant

126. Identify the compound given below which has bonds formed by overlapping of sp and p orbitals:

- A. BeCl_2
- B. BF_3
- C. H_2O
- D. NH_3

127. Which of the following elements has highest ionization energy?

- A. O
- B. C
- C. N
- D. Be

128. Which of the following shows marked deviation from ideal behaviour at a given temperature and pressure?

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

129. Exceptionally low acidic strength of HF is due to:

- A. Strong polar bond between H & F
- B. Smaller size of fluorine
- C. More electronegativity of fluorine
- D. Strong hydrogen bonding

130. Which of the following compounds has lowest boiling point?

- A. Water
- B. Ethanol
- C. Hydrogen sulphide
- D. Acetic acid

131. A pressure cooker reduces cooking time because:

- A. A large heat is used
- B. Heat is more evenly distributed
- C. The higher pressure softens food inside
- D. The boiling point of water rises inside

132. Which of the following ionic compounds has the highest value of lattice energy?

- A. NaF
- B. LiCl
- C. NaI
- D. KI

133. Which one of the following is the example of polar molecular solids?

- A. Ice
- B. Iodine
- C. Copper
- D. Phosphorous

134. Which of the following ions forms most stable complex compound?

- A. Cu^{+2}
- B. Ni^{+2}
- C. Fe^{+2}
- D. Mn^{+2}

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135. All of the following compounds are organic except:

- A. KOCN
- B. C_6H_5OH
- C. CH_3COCH_3
- D. CH_3OH

136. The isomers of a substance must have:

- A. Same molecular mass
- B. Same chemical properties
- C. Same structural formula
- D. Same functional group

137. Which of the following compounds has highest boiling point?

- A. Cyclohexane
- B. Cyclopentane
- C. Cycloheptane
- D. Cyclobutane

138. Propyne reacts with aqueous sulphuric acid in the presence of $HgSO_4$ to form:

- A. Acetone
- B. 1-Propanol
- C. 2-Propanol
- D. Acetaldehyde

139. The electrophile which is considered to be the active agent in the nitration of benzene is:

- A. NO^{+2}
- B. NO^{-2}
- C. NO^+
- D. NHO^{+2}

140. Which compound reacts most rapidly by an S_N1 mechanism?

- A. Chloromethane
- B. 1-Chloromethane
- C. 2-chloro-2-methylpropane
- D. 2-chloropropane

141. Which of the following alkyl halides has the highest boiling point?

- A. n-butyl iodide
- B. isobutyl iodide
- C. isopropyl Bromide
- D. n-propyl bromide

142. Which of the following will not affect the S_N1 mechanism?

- A. Nature of solvent
- B. Carbocation

- C. Nature of nucleophile
- D. Carbanion

143. Which of the following compounds is most acidic?

- A. Water
- B. Ethanol
- C. Phenol
- D. Cyclohexanol

144. Buffer capacity is maximum when both components have:

- A. High concentration
- B. Equal concentration
- C. Low concentration
- D. High and equal concentration

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145. If the solubility product (K_{sp}) value is large, the salt in water is:

- A. More soluble
- B. Less soluble
- C. Moderately soluble
- D. No concentration

146. The unit of rate constant K is $\text{dm}^3\text{mole}^{-1}\text{s}^{-1}$ for a chemical reaction, the order of reaction is:

- A. 1
- B. 3
- C. 0
- D. 2

147. A system that can exchange or transfer both matter and energy with the surroundings is:

- A. Isolated system
- B. Closed system
- C. Open system
- D. Adiabatic system

148. The sum of all the energies of all the molecules or atoms of a substance is called its:

- A. Specific heat
- B. Heat capacity
- C. Latent heat
- D. Internal energy

149. Which of the following elements has the same oxidation number in all of its known compounds?

- A. Beryllium
- B. Chlorine
- C. Nitrogen
- D. Bromine

150. A cathode has the reduction potential:

- A. Less than the anode
- B. More than the anode
- C. Same as that of anode
- D. Zero

151. A radius greater than its parent atom is called:

- A. Cationic radii
- B. Atomic radii
- C. Covalent radii
- D. Anionic radii

152. What is the composition of alloy, German silver?

- A. Cu + Zn + Ni
- B. Cu + Ag + Ni
- C. Cu + Sn + Zn + Pb
- D. Al + Cu + Mg + Mn

153. One mole of a reactant reacts with a rate of $0.6 \text{ mol dm}^{-3} \text{ s}^{-1}$. What is the rate constant of this reaction if reaction is first order?

- A. 1 s^{-1}
- B. 0.3 s^{-1}
- C. 0.6 s^{-1}
- D. 0.9 s^{-1}

154. What will be the product when phenol reacts with concentrated HNO_3 ?

- A. Picric acid
- B. Para-Nitrophenol
- C. Ortho-Nitrophenol
- D. All of the above

155. Acetone reacts with hydrogen cyanide (HCN) to form a cyanohydrin. It is an example of;

- A. Electrophilic addition
- B. Electrophilic substitution
- C. Nucleophilic substitution
- D. Nucleophilic addition

156. Benedict's solution is the combination of:

- A. $\text{Cu}(\text{OH})_2 + \text{NaOH} + \text{Tartaric acid } (\text{C}_4\text{H}_6\text{O}_6)$
- B. $\text{Cu}(\text{OH})_2 + \text{NaOH} + \text{Citric acid } (\text{C}_6\text{H}_8\text{O}_7)$
- C. $\text{Ag}(\text{NH}_3)_2 \text{ OH} + \text{NaOH} + \text{H}_2\text{SO}_4$
- D. $\text{NaCl} + \text{NaOH} + \text{Citric acid}$

157. Which of the following statements is false about the acid-strength of acetic acid?

- A. Acetic acid is a stronger acid than monochloroacetic acid.
- B. Acetic acid is a stronger acid than propionic acid.
- C. Acetic acid is a weaker acid than Trichloroacetic acid.
- D. Acetic acid is a weaker acid than formic acid.

158. The linear arrangement of amino acid units in proteins is called:

- A. Secondary structure
- B. Tertiary structure
- C. Primary structure
- D. Quaternary structure

159. The amount of products that is actually produced during a chemical reaction by performing experiment is called

- A. Mole
- B. Actual yield
- C. Theoretical yield
- D. Percent yield

160. The shape of ammonia (NH₃) is _____.

- A. Trigonal bi pyramidal
- B. Trigonal pyramidal
- C. Trigonal plannar
- D. Square plannar

161. The thermal decomposition of nitrogen pentaoxide in gaseous state follows, which one of the following order of reaction? $\text{N}_2\text{O}_{5(g)} \rightarrow 2\text{NO}_{2(g)} + 1/2\text{O}_{2(g)}$

- A. First order
- B. Second order
- C. Fractional order
- D. Third order

162. The temperature above which two conjugate solutions merge into one another is called.

- A. Critical solution temperature
- B. Critical solution point
- C. Absolute solution temperature
- D. Absolute solution point

163. In which of the following molecule hydrogen bond is not present?

- A. H₂O
- B. HF
- C. CH₄
- D. NH₃

164. The distillation carried out under reduced pressure is called

- A. Steam distillation
- B. Simple distillation
- C. Fractional distillation
- D. Vacuum distillation

165. Which one of the following pairs of compounds is not isomorphous in nature?

- A. NaF and MgO
- B. KNO₃ and NaNO₃
- C. ZnO and CdS
- D. AgNO₃ and KNO₃

166. The value of solubility products depends only on _____.

- A. Temperature
- B. Solvent
- C. Pressure
- D. Catalyst

167. All alkaline metals are white in colour except

- A. Beryllium
- B. Magnesium
- C. Calcium
- D. Strontium

168. **Optical activity of a compound is measured by an instrument called_____.**

- A. Hydrometer
- B. Barometer
- C. Calorimeter
- D. Polarimeter

169. **The structural isomerism in which isomers are in dynamic equilibrium with each other is:**

- A. Chain isomerism
- B. Position isomerism
- C. Metamerism
- D. Tautomerism

170. **Isopropyl benzene is also called**

- A. Cumene
- B. Xylene
- C. Toluene
- D. Cresol

171. **The first ionization energy of Al is less than Mg. This is due to:**

- A. Electron in the $3P^2$ of Al
- B. Al is less metallic than Mg
- C. Mg comes first than Al
- D. ionization energy from Mg to Al decreases

172. **Which one has Prussian blue colour?**

- A. Ferric hexa cyano ferrate (II)
- B. Iron (III) hexa cyano ferrate (II)
- C. Sodium hexa cyano ferrate (III)
- D. Both A & B

173. **Which one is a stronger Lewis Base?**

- A. Phenol
- B. Aniline
- C. Pyridine
- D. Both A & B have equal strength

174. **Photon of which of the following series will have largest wave length?**

- A. Bracket series
- B. Plund series
- C. Balmer series
- D. Paschen series

175. **Which one of the following elements has the largest second ionization energy?**

- A. Ca
- B. K
- C. Cl
- D. Bi

176. **The stronger the reduction potential the more difficult it is to:**

- A. Reduce the compound
- B. Oxidize the compound
- C. Electrolyze the compound
- D. Neither reduce nor oxidize the compound

ENGLISH

177. Cowardice is an example of a/an

- A. common noun
- B. proper noun
- C. countable noun
- D. abstract noun

178. Bridegroom is an example of a/an

- A. neuter gender
- B. common gender
- C. masculine gender
- D. feminine gender

179. I waited for the bus but it was late. [Identify the sentence]

- A. Simple
- B. Complex
- C. Compound
- D. Mixed

180. We can drive the tunnel. (Use the correct preposition)

- A. by
- B. at
- C. through
- D. into

181. She needs to clean the room. (Choose the correct voice)

- A. The room needed to clean by her.
- B. The room needed to be cleaned by her.
- C. The room needs to be clean by her.
- D. The room needs to be cleaned by her.

182. What figure of speech is used in the sentence, "He is the black sheep of the class".

- A. Simile
- B. Metaphor
- C. Alliteration
- D. Hyperbole

183. Had I studied very well, I _____ rewarded with the scholarship.

- A. was
- B. were
- C. will have been
- D. would have been

184. My brother and I met an acquaintance of _____ on the shopping mall.

- A. ourselves
- B. us
- C. our

D. ours

185. The word ADEPT means

- A. Proficient
- B. Naïve
- C. Friend
- D. Abode

186. The synonym for the word FRUGALITY is

- A. Economy
- B. Enthusiasm
- C. Foolishness
- D. Effective

187. The antonym for the word CHAOTIC is

- A. Embarrassing
- B. Hectic
- C. Orderly
- D. Nervous

188. I said to you, "What a nice scenery!" (Choose correct indirect narration for the given sentence]

- A. I exclaimed that it was a nice scenery.
- B. I exclaimed that it is a nice scenery.
- C. I told you that what a nice scenery.
- D. I told you that what was a nice scenery.

189. Choose the grammatically correct sentence.

- A. No, I haven't never been to a shopping mall.
- B. No, I haven't ever been to a shopping mall.
- C. No, I have ever been to a shopping mail.
- D. No, I haven't ever never been to a shopping mall.

190. The child _____ spoken to his parents before going on the trip.

- A. Have
- B. Will be
- C. Had
- D. Would

191. The cause of car accident can have been a malfunctioning brake pads. [Choose the incorrect underlined item]

- A. The cause
- B. Can
- C. Have

D. Malfunctioning

192. I am as much intelligent as _____.

- A. he
- B. himself
- C. him
- D. his

Read the passage and answer the question Q193;

Comprehension of medical books is considered as one of the most difficult processes among understanding technical terms of diversified fields. Many studies have considered reading as a guessing activity; which means regardless of the student's level, the text will frequently contain numerous difficult words.

The ability to guess and infer the meanings of unknown terminology might be viewed as a skill that should be developed.

193. All is true except:

- A. Acquiring technical jargon is difficult in technical professions, such as medical.
- B. The only reading approach used by medical students is inferring the meaning of challenging words,
- C. The technical terminology makes comprehension of medical text challenging.
- D. None of the above

LOGICAL REASONING

Read the passage and answer the question:

People say that certain cancers are protected against by tomatoes and processed tomato products like tomato sauce and canned tomatoes. Lycopene has been found to be responsible for tomato's and tomato product's ability to prevent certain cancer. Lycopene is the vivid red pigment that gives a red hue to tomatoes and other red fruits. The processed tomatoes are found to have more Lycopene. Tomato paste contains four times as much Lycopene as fresh tomatoes do because Lycopene is strongly linked to vegetable fiber and is soluble in water. Further, oil helps in absorption of Lycopene because it is a fat-soluble substance.

194. It can be understood from the passage that as far as Lycopene intake is concerned;

- A. It is a pigment which is solved quickly in water and juice.
- B. Lycopene hardly offers any protection against cancer.
- C. Tomato products contain high concentrations of Lycopene and fat.
- D. There is a correlation between the Lycopene consumption and the prevention of some cancer types.

Read the passage below and answer Q195-197:

The water resources of our country are very much underutilized, the main reason behind this is the lack of capital and technology. A large portion of our water resources is wasted due to floods, unwise use of water for irrigation and domestic use. We can make full use of our water resources by building dams on rivers and through awareness campaigns among people not to waste water resources.

195. Building of dams is an essential step in the conservation of water resources.

- A. Definitely true
- B. Probably true
- C. Data is inadequate
- D. Probably false

196. Occurrence of floods add to the water resources,

- A. Definitely true
- B. Probably true

- C. Probably false
- D. Definitely false

197. The country does not have enough funds to develop water resources.

- A. Definitely true
- B. Probably true
- C. Data is inadequate
- D. Probably false

198. In a certain language, REMOTE is coded as ROTEME, which word would be coded as PNIICC?

- A. PINCIC
- B. PNICIC
- C. PICNIC
- D. PICCIN

199. Five bags are lying in a pile one above the other. If A is above B, C is above D but below E and D is above A, which bag is in the middle.

- A. E
- B. D
- C. A
- D. B

200. Find the term which does not fit into the sequence: ICV, 5FU, SIT, 15L5, 170R

- A. 170R
- B. 5FU
- C. 9IT
- D. 15LS

THE END

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