

Total MCQS: 200

Max. Marks: 200

ETEA MDCAT - 2022

For F.Sc. and Non- F.Sc Students

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

Instructions:

- I. Read the instruction on the MCQ Response Form carefully.
- II. Choose the Single Best Answer for each question.
- III. Each Correct Answer carries One Mark. There is No Negative Marking.
- IV. Candidates are strictly prohibited from given any identification mark expect Roll. No. & Signature in the specified columns only.

BIOLOGY

1. Which one of the following is not the characteristic of viruses?

- | | |
|--|------------------------------|
| A. They do not respire. | B. They do not excrete. |
| C. They do not have the ability to reproduce | D. They can be crystallized. |

Answer Key: C

2. In 1935 W.M. Stanley prepared an extract of:

- | | |
|-------------------------------|---------------------------------------|
| A. Tobacco mosaic virus (TMV) | B. Human immunodeficiency virus (HIV) |
| C. Flu virus | D. Polio virus |

Answer Key: A

3. Human immunodeficiency virus (HIV) particles surround with a coat known as the viral envelop or membrane made up of;

- | | |
|-----------------|----------------|
| A. Glycoprotein | B. Glycolipid |
| C. Lipoprotein | D. Sulpholipid |

Answer Key: C

4. The word hepatitis means inflammation of the;

- | | |
|-------------|-----------------|
| A. Pancreas | B. Liver |
| C. Spleen | D. Gall bladder |

Answer Key: B

5. The resting membrane potential of neuron is measured about:

- | | |
|-------------------|-------------------|
| A. -30 millivolts | B. 50 millivolts |
| C. -70 millivolts | D. 100 millivolts |

Answer Key: C

6. In aerobic respiration glucose molecule is completely broken down into carbon dioxide

(C02), water (H2O) and energy. $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + ?$

A. 2 ATP

B. 4 ATP

C. 34 ATP

D. 36 ATP

Answer Key: D

7. The four types of fundamental biological molecules present in protoplasm are carbohydrates, proteins, lipids and

A. Enzymes

B. Hormones

C. Nucleic acids

D. Alkaloids

Answer Key: C

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

A. Aldehyde group

B. Ketone group

C. Carboxyl group

D. Ester group

Answer Key: A

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

Answer Key: C

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

A. Phospholipids

B. Waxes

C. Steroids

D. Acylglycerol

Answer Key: C

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

Answer Key: B

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

Answer Key: C

13. Those nerves that originate from or lead to the brain are called cerebral nerves. There are pairs of cerebral nerves in human.

A. 6

B. 12

C.14

D.31

Answer Key: B

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

Answer Key: C

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

Answer Key: A

16. The word "Annelida" is of Greek origin; "annelus" means:

A. Little ring

B. Segmented body

C. Thread

D. Hollow

Answer Key: A

17. Most of the coenzymes are the derivatives of;

A. Lipid

B. Minerals

C. Steroids

D. Waxes

Answer Key: B

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

Answer Key: A

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

Answer Key: C

20. Which one of the following part of human respiratory system forms the gas exchange surface?

A. Trachea

B. Larynx

C. Bronchi

D. Alveoli

Answer Key: D

21. The average adult human has a lung capacity of approximately;

A. 2 liters

B. 5 liters

C. 9 liters

D. 12 liters

Answer Key: B

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

Answer Key: D

23. Which one of the following cells have haploid number of chromosome?

A. Sperm cell

B. Mesophyll cell

C. Skin cell

D. Muscular cell

Answer Key: A

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. Immobile joint

Answer Key: C

25. The joints present in the elbow and knee are the example of which type of joint?

A. Immobile joint

B. Slightly movable joint

C. Hinge joint

D. Ball and socket joint

Answer Key: C

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

Answer Key: D

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

Answer Key: C

28. The statement "the membrane is like a sea of lipids in which proteins are floating" represents:

A. Gorter & Grendel Model

B. J F Daniell & Davison Model

C. Robertson Model

D. S J Singer and Nicholson Model

Answer Key: D

29. Detoxification of drug is the main role of:

- A. Golgi bodies
- B. Mitochondria
- C. Rough Endoplasmic Reticulum
- D. Smooth Endoplasmic Reticulum

Answer Key: D

30. The chloroplasts contain:

- A. Proteins only
- B. Ribosomes only
- C. Small circular DNA only
- D. Proteins, Ribosomes and small circular DNA

Answer Key: D

31. Mitochondria was first seen as granules in:

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

Answer Key: C

32. Hemoglobin is a:

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

Answer Key: B

33. The glycerol is a carbon compound:

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

Answer Key: A

34. Enzymes are in nature:

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

Answer Key: B

35. The range of visible light is from:

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

Answer Key: C

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

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

Answer Key: A

37. The Calvin cycle is completed in stages:

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

Answer Key: B

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

Answer Key: C

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

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

Answer Key: C

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

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

Answer Key: C

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

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

Answer Key: D

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

Answer Key: C

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

Answer Key: D

44. An exception to Mendel's law is:

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

Answer Key: A

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

Answer Key: C

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

Answer Key: A

47. Hormones are usually:

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

Answer Key: C

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

Answer Key: A

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

Answer Key: B

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%

Answer Key: D

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

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

Answer Key: C

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

Answer Key: D

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

Answer Key: C

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

A. Graves disease

B. Gigantism

C. Goiter

D. Exophthalmia

Answer Key: C

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

A. 70%

B. 23%

C. 15%

D. 7%

Answer Key: B

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

A. a specie

B. a population

C. an organism

D. cell

Answer Key: A

57. The most abundant element present in human body is

A. Sulphur

B. nitrogen

C. carbon

D. manganese

Answer Key: C

58. Mammals become dominant in:

A. Cenozoic Period

B. Jurassic Period

C. Mesozoic Period

D. Paleozoic period

Answer Key: A

59. A hemoglobin molecule consists of Amino acids:

A. 874

B. 474

C. 674

D. 574

Answer Key: D

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

Answer Key: C

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

Answer Key: D

62. Rh antigen was first studied in

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

Answer Key: A

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%

Answer Key: D

64. The longest phase of the menstrual cycle is

- A. preovulatory phase
- B. secretory phase
- C. ovulatory phase
- D. menstrual phase

Answer Key: B

65. The most common protein in nature is

- A. collagen
- B. rubisco
- C. DNAase
- D. keratin

Answer Key: B

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

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

Answer Key: C

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

Answer Key: C

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

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

Answer Key: B

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

Answer Key: C

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

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

Answer Key: D

71. Which one is not a vector quantity?

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

Answer Key: C

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

- A. Velocity
B. Angular displacement
C. Amplitude
D. Amount of work

Answer Key: A

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

Answer Key: A

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. 5S m/s
B. 10 m/s
C. 15 m/s
D. 20 m/s

Answer Key: B

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

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

Answer Key: C

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

Answer Key: A

77. The equation for kinetic energy is:

- A. $KE = \frac{1}{2}mv^2$
 B. $KE = mv^2$
 C. $KE = \frac{1}{2}mv - F$
 D. $KE =$

Answer Key: B

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 followings is possible at thermal equilibrium?

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

Answer Key: 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

Answer Key: B

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

- A. $U = +QV$
 B. $U = \frac{1}{2}cV^2$
 C. $U = \frac{1}{2}Qc$
 D. $U = -2$

Answer Key: B

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. 25cm from Q_2
 B. 75cm from Q_2
 C. 50cm from Q_1
 D. 33.30m from Q_1

Answer Key: A

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

Answer Key: A

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

Answer Key: C

84. A conductor has resistance P. 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

Answer Key: C

85. Electricity consumption is calculated commercially in:

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

Answer Key: B

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

Answer Key: B

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

- A. $R = \rho r^{-1}$
B. $R = \rho r^{-2}$
C. $R = \rho r^{-3}$
D. $R = \rho r^{-4}$

Answer Key: B

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. $iq\mathbf{v}$

Answer Key: C

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

Answer Key: A

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

Answer Key: C

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

Answer Key: B

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

Answer Key: B

93. The unit of magnetic flux is:

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

Answer Key: A

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

Answer Key: B

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

Answer Key: B

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

Answer Key: B

97. An electron will have maximum kinetic energy when it has:

- A. Long wavelength
- B. Short wavelength
- C. Low frequency
- D. Circular motion

Answer Key: B

98. When AC is converted to DC, the process is called:

- A. Magnification
- B. Amplification
- C. Rectification
- D. Resolution

Answer Key: C

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

Answer Key: B

100. The radiation emitted by warm blooded animals lies in the region of:

- A. Visible
- B. Ultraviolet
- C. Infrared
- D. X-rays

Answer Key: C

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.

Answer Key: D

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.

Answer Key: C

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

Answer Key: B

104. In a conducting electric wire, the electric A. Radioactivity current flows due to

A. Protons

B. Ions

C. Holes

D. Electrons

Answer Key: D

105. The shortest possible wavelength is

A. Lyman series

B. Balmer series

C. Paschen series

D. Brackett series

Answer Key: A

106. Which radiation cannot be generated under electron transitions in different orbits?

A. Infrared

B. Ultraviolet

C. X-rays

D. Y-rays

Answer Key: D

107. Radioactivity does not depend upon:

A. Initial number of atoms

B. Temperature

C. Nature of material

D. Time

Answer Key: B

108. Which one is not the unit of radio-activity?

A. Bq

B. Ci

C. Decay/second

D. Tesla/m²

Answer Key: D

109. Curie is the unit of:

A. Radioactivity

B. Temperature

C. Half life

D. Transition of magnetism

Answer Key: A

110. Which one is stable element in the following?

A. Lead

B. Plutonium

C. Radium

D. Protactinium

Answer Key: A

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

Answer Key: A

112. The longest wavelength observed in Balmer series is:

- A. $36R/5$
- B. $36R/7$
- C. $36R/11$
- D. $36R/13$

Answer Key: A

113. The shortest wavelength of Lyman series is (R_H = Rydberg Constant.)

- A. R_H
- B. $1/R_H$
- C. $3R_H$
- D. $5/R_H$

Answer Key: B

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

Answer Key: A

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

Answer Key: D

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. $3R_1 = R_2$

Answer Key: C

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

Answer Key: B

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 options 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

Answer Key: B

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

Answer Key: B

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

Answer Key: D

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. $2T$

Answer Key: A

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. $lf=v+T$

C. $1f=1/T$

D. $T=v/T$

Answer Key: C

CHEMISTRY

123. Which of the following contains the same number of molecules as 22g of carbon dioxide?

A. 9g of water

B. 2g of hydrogen gas

C. 32g of oxygen gas

D. 71g of chlorine gas

Answer Key: A

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. $\text{C}_2\text{H}_2\text{D}_2$

D. $\text{C}_2\text{H}_2\text{O}_2$

Answer Key: B

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

Answer Key: B

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

- A. BeCl_2
B. $\text{C}_2\text{H}_2\text{O}_2$
C. $\text{C}_2\text{D}_6\text{O}_2$
D. $\text{C}_2\text{H}_3\text{O}_2$

Answer Key: A

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

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

Answer Key: C

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

Answer Key: A

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

Answer Key: D

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

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

Answer Key: C

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

Answer Key: D

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

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

Answer Key: A

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

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

Answer Key: A

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

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

Answer Key: A or C

135. All of the following compounds are organic except:

- A. KOCN B. $\text{C}_6\text{H}_5\text{OH}$ C. CH_3COCH_3 D. CH_3OH

Answer Key: A

136. The isomers of a substance must have:

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

Answer Key: A

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

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

Answer Key: C

138. Propyne reacts with aqueous sulphuric acid in the presence of Hg^{2+} to form:

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

Answer Key: A

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}

Answer Key: C

140. Which compound reacts most rapidly by an $\text{S}_{\text{N}}1$ mechanism?

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

Answer Key: C

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

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

Answer Key: A

142. Which of the following will not affect the $\text{S}_{\text{N}}1$ mechanism?

- A. Nature of solvent B. Carbocation
C. Nature of nucleophile D. Carbanion

Answer Key: D

143. Which of the following compounds is most acidic?

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

Answer Key: C

144. Buffer capacity is maximum when both components have:

- A. High concentration B. Equal concentration

C. Low concentration

D. High and equal concentration

Answer Key: D

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

Answer Key: A

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

Answer Key: D

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

Answer Key: C

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

Answer Key: D

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

Answer Key: A

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

Answer Key: B

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

A. Cationic radii

B. Atomic radii

C. Covalent radii

D. Anionic radii

Answer Key: D

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

A. Cu + Zn + Ni

B. Cu + Ag + Ni

C. $\text{Cu} + \text{Sn} + 4\text{Zn} + \text{Pb}$

D. $\text{Al} + \text{Cu} + \text{Mg} + \text{Mn}$

Answer Key: A

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}

Answer Key: C

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

Answer Key: A

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

Answer Key: D

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. $\text{Cu}(\text{OH})_2 + \text{NaOH} + \text{Citric acid } (\text{C}_6\text{H}_7\text{O}_7)$

C. $\text{Ag}(\text{NH}_3)_2\text{OH} + \text{NaOH} + \text{H}_2\text{SO}_4$

D. $\text{NaCl} + \text{NaOH} + \text{Citric acid}$

Answer Key: B

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.

Answer Key: A

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

A. Secondary structure

B. Tertiary structure

C. Primary structure

D. Quaternary structure

Answer Key: C

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

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

Answer Key: B

160. The shape of ammonia (NH_3) is

- A. Trigonal bipyramidal
C. Trigonal planar
- B. Trigonal pyramidal
D. Square planar

Answer Key: B

161. The thermal decomposition of nitrogen pentoxide in gaseous state follows, which one of the following order of reaction? ($\text{N}_2\text{O}_5 \rightarrow \text{N}_2\text{O}_4 + \text{O}_2$)

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

Answer Key: A

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

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

Answer Key: A

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

- A. H_2O
B. HF
C. CH_4
D. NH_3

Answer Key: C

164. The distillation carried out under reduced pressure is called

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

Answer Key: D

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

- A. NaF and MgO
C. ZnO and CdO
- B. KNO_3 and NaNO_3
D. AgNO_3 and KNO_3

Answer Key: D

166. The value of solubility product depends only on

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

Answer Key: A

167. All alkaline earth metals are white in colour except

- A. Beryllium
B. Magnesium

C. Calcium

D. Strontium

Answer Key: A

168. Optical activity of a compound is measured by an instrument called _____.

A. Hydrometer

B. Barometer

C. Calorimeter

D. Polarimeter

Answer Key: D

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

Answer Key: D

170. isopropyl benzene is also called

A. Cumene

B. Xylene

C. Toluene

D. Cresol

Answer Key: A

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

A. Electron in the 3p' of Al

B. Al is less metallic than Mg

C. Mg comes first than Al

D. Ionization energy from Mg to Al

decreases

Answer Key: A

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

Answer Key: D

173. Which one is a stronger Lewis Base?

A. Phenol

B. Aniline

C. Pyridine

D. Both A & B have equal strength

Answer Key: C

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

A. Bracket series

B. Lyman series

C. Balmer series

D. Paschen series

Answer Key: B

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

A. K

B. Ca

C.Cl

D. Bi

Answer Key: A

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

A. Reduce the compound

B. Oxidize the compound

C. Electrolyze the compound
compound

D. Neither reduce nor oxidize the

Answer Key: B

ENGLISH

177. Cowardice is an example of a/an

A. common noun

B. proper noun

C. countable noun

D. abstract noun

Answer Key: D

Abstract nouns are things we cannot see or touch. They are often feelings, emotions, or traits e.g friendship, enthusiasm, cowardice.

178. Bridegroom is an example of a/an

A. neuter gender

B. common gender

C. masculine gender

D. feminine gender

Answer Key: C

Bridegroom is a man who just got married or is about to be married.

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

A. Simple

B. Complex

C. Compound

D. Mixed

Answer Key: C

Compound sentence is a sentence that connects two independent clauses, usually with a coordinating conjunction like “and” or “but”.

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

A. by

B. at

C. through

D. into

Answer Key: C

“through” is the correct preposition to be used

because “through the tunnel” means to enter the tunnel on one end and emerge out of the other end.

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.

Answer Key: D

In the passive form, the statement will be " The room needs to be cleaned by her “because” simple present tense is changed into passive by changing clean into 3 form. “clean” is the main verb. “Needs to” is a modal and will not be changed.

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

Answer Key: B

A metaphor is a figure of speech that describes an object or an action in a way that isn't literally true, but helps explain an idea or make a comparison. To be a black sheep means "a member of a group who is different from the rest or has a bad reputation”.

183. Had | studied very well, rewarded with the scholarship.

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

Answer Key: D

“Would have been” is a type 3 conditional tense that is used for situations that did not happen, an unreal or past situation. it is used to describe a situation that " would have” happened if another situation were to take place,

184. My brother and | met an acquaintance of on the shopping mall,

A. ourselves

B. us

C. our

D. ours

Answer Key: D

“Ours” is a possessive pronoun, which is used to refer to something or someone that belongs to or relates to yourself and to one or more other people.

185. The word ADEPT means

A. Proficient

B. Naive

C. Friend

D. Abode

Answer Key: A

Adopt means "very skilled or proficient at something".

186. The synonym for the word FRUGALITY is

A. Economy

B. Enthusiasm

C. Foolishness

D. Effective

Answer Key: A

Frugality means being economic: the quality of being careful when using money or food.

187. The antonym for the word CHAOTIC is

A. Embarrassing

B. Hectic

C. Orderly

D. Nervous

Answer Key: C

Chaotic means completely confused or disordered, while in antonym (opposite) is peaceful or ordered/orderly.

188. 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.

Answer Key: A

it is an exclamatory sentence, and present

tense will be change to past hence option A is correct.

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.

Answer Key: B

Option B is correct because with "No" you talk about a negative situation but after "No", you cannot use two negative terms in a single sentence.

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

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

Answer Key: C

had is the correct option because "had spoken" makes the correct form of past perfect tense "subs had+ 3rd form of verb+ object"

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

Answer Key: B

"can have" is incorrect in this situation "could have been" is used to talk about something that was or was not possible in the past"

192. I am as much intelligent as

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

Answer Key: A

"he" is a subjective pronoun. In formal English, when making comparison, the following pronoun should be in the nominative case "he" » Not "him"

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

Answer Key: B

The passage did not suggest that “simply guessing and arriving at a condition” is the only method used by medical students to understand complex content. It is just a consideration in the passage.

LOGICAL REASONING

194. 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 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 dissolved 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.

Answer Key: D

Option D is most appropriate.

A is partly correct because there is no mention of juice in the passage.

B is incorrect because lycopene does offer protection against certain cancers.

C is correct but D is most appropriate because it is the main theme of the passage: The correlation between the lycopene consumption

and the prevention of some cancers 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

Answer Key: A

As mentioned in the passage, water resources can be reserved by building dams and awareness campaigns.

196. Occurrence of floods add to the water resources,

- A. Definitely true
B. Probably true
C. Probably false
D. Definitely false

Answer Key: D

As mentioned in passage, occurrence of floods does not add to water resources instead it is a huge cause of water wastage.

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

Answer Key: A

Lack of capital and technology refers to lack of funds to develop water resources, as mentioned in the passage.

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

Answer Key: C

Given, REMOTE is coded as ROTEME.

Here, the groups of second and third letters; fourth and fifth letters in the word swap their places to give the code. Similarly, the word PICNIC would be coded as PNIICC.

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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

Answer key: B

Logical Problem Trick Sir Explained in Grand Test Discussion

Question Copy/paste Engeecon Online account

200. Find the term which does not fit into the sequence:

ICV, 5FU, SIT, 15L5, 170R

A. 170R

B. 5FU

C. 9IT

D. 15LS

Answer Key: D