BIOLOGY

1. Which one of the following is the main component of lipid bilayer of plasma membrane?

A. Acylglycerol
B. Lecithin
C. Triglyceride
D. Waxes

2. At which of the following stage of Prophase I, crossing over takes place?

A. Diplotene
B. Leptotene
C. Pachytene
D. Zygotene

3. Which one of the following type of plastids helps in pollination and seed dispersal?

A. Amyloplast
B. Chloroplast
C. Chromoplast
D. Leucoplast

4. Which one of the following types of bonds is formed between the hydroxyl group of one amino acid and hydrogen of amino group of another amino acid with release of water?

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

5. How much delay is required in seconds for conductance from the S.A node to A.V node?

A. 0.10
B. 0.15
C. 0.20
D. 0.30

6. Who purified filterable agents for the first time?

- **A. Charles Chamberland**
- **B. Ivanowski**
- **C. Louis Pasteur**
- **D. Stanley**

7. When neurotransmitter molecules bind to the receptors on post synoptic membrane, triggering an action potential in the postsynaptic neuron, by causing changes in its _____.

- **A. concentrations of certain ion**
- **B. concentrations of hydrogen ion**
- **C. permeability of calcium ion**
- **D. permeability to certain ion**

8. The living cells of cartilage are called _____.

- **A. Chondroblast**
- **B. Chondroclasts**
- **C. Chondrocytes**
- **D. Osteocytes**

9. When diaphragm moves downward, ribs moves upward and outward, volume in _____ increases while pressure in _____ decreases.

- **A. abdominal cavity, lungs**
- **B. chest cavity, lungs**
- **C. lungs, abdominal cavity**
- **D. lungs, chest cavity**

10. Which one of the following is the acoelomates?

- **A. *Aurelia***
- **B. *Chaetopterus***
- **C. *Euplectella***
- **D. *Taenia***

11. What will be CO_2 fixation efficiency in plants with photorespiration?

A. 20%
B. 25%
C. 50%
D. 75%

12. Which one of the following conditions produce a sterile female with Turner's syndrome in human but sterile male in *Drosophila*?

A. X0
B. XX0
C. XXX
D. XXY

13. By the fusion of ilium, ischium and pubis in pelvic girdle _____ is formed.

A. ball and socket joint
B. cartilaginous joint
C. fibrous joint
D. hinge joint

14. Which of the following parts of brain is related to sensation of pleasure, feeling of fear, rage and punishment or sexual arousal when stimulated?

A. Amygdala
B. Hippocampus
C. Hypothalamus
D. Thalamus

15. How much energy is present in the chemical bond of glucose that is converted into ATP by anaerobic respiration?

A. 2%
B. 4%
C. 10%
D. 36%

16. **In Calvin Cycle, the conversion of 5 molecules of Glyceraldehyde 3-phosphate into 3 molecules of Ribulose 1-5, bisphosphate by utilization of ATP is termed as _____.**

    A. **CO_2 Fixation**
    B. **Phosphorylation**
    C. **Reduction**
    D. **Regeneration**

17. **Movement of materials across plasma membrane of Amoeba, to engulf the liquid food is termed as _____.**

    A. **Endocytosis**
    B. **Exocytosis**
    C. **Phagocytosis**
    D. **Pinocytosis**

18. **Which one of the following carbohydrates show dark brown color with iodine solution?**

    A. **Cellulose**
    B. **Glucose**
    C. **Glycogen**
    D. **Sucrose**

19. **At 25°C the concentration of each of H^+ and OH^- ions in pure water is about _____ mole/liter.**

    A. **10^{-6}**
    B. **10^{-7}**
    C. **10^{-9}**
    D. **10^{-14}**

20. **Inner surface of cristae, in the mitochondrial matrix have many small knob-like structures, which are actually _____.**

    A. **ATP synthetase**
    B. **Coenzyme Q**
    C. **Cytochromes**
    D. **Mesosomes**

21. When ovulation occurs during uterine cycle in human female?

A. After 6 days of start of menstruation
B. After 10 days of start of menstruation
C. After 14 days of start of menstruation
D. After 27 days of start of menstruation

22. In eukaryotic cells, autophagosomes are being originate from _____.

A. Endoplasmic reticulum
B. Golgi bodies
C. Mitochondria
D. Ribosomes

23. Which one of the following malfunctioned organelles is mainly related to Tay-Sachs disease?

A. Endoplasmic reticulum
B. Glyoxysomes
C. Golgi bodies
D. Lysosomes

24. Which type of antibodies are present in the serum of AB blood type?

A. Anti-A and anti-B antibodies
B. Anti-A antibodies
C. Anti-B antibodies
D. No antibodies at all

25. When 3 fatty acids combine with _____, they form triglycerides and 3 molecules of water.

A. Alcohol
B. Ester
C. Glyceride
D. Glycerol

26. The science of discovery, identification, and interpretation of fossils by Darwin was _____ evidence.

A. biogeography
B. chronology
C. homology
D. paleontology

27. Which one of the following is the end product in electron transport chain taking place at inner mitochondrial membrane?

A. Carbon dioxide
B. NADPH
C. Oxygen
D. Water

28. Which one of the following plants has modified bilobed leaves with midrib between them having long stiff bristles along the margins of each lobe?

A. *Dionaea muscipula*
B. *Drosera excelsa*
C. *Drosera intermedia*
D. *Nepenthes pupurea*

29. In which one of the following types of dominance, genotypic and phenotypic ratios are same in F_1 generation?

A. Co-dominance
B. Complete dominance
C. Incomplete dominance
D. Over dominance

30. A covalently bonded inorganic ion with protein part of an enzyme is termed as _____.

A. Apoenzyme
B. Coenzyme
C. Holoenzyme
D. Prosthetic group

31. Which one of the following group of chemicals are used to kill or inhibit the growth of microorganisms in living tissues?

A. Antiseptics
B. Chemotherapeutics
C. Disinfectants
D. Vaccines

32. In Cyclic Photophosphorylation, which one of the following processes of light dependent reaction of photosynthesis is NOT included?

A. Absorption of light
B. ATP synthesis
C. Photoexcitation
D. Photolysis of water

33. What is the range of carbon dioxide in the air?

A. 0.003-0.004%
B. 0.03-0.04%
C. 0.3-0.4%
D. 3-4%

34. Which one of the following cells produce the first polar body during oogenesis in female reproductive system?

A. Oogonia
B. Ovum
C. Primary oocytes
D. Secondary oocytes

35. Cyanides occupy the active site of enzymes by forming covalent bond, thus comes under the _____ inhibitors.

A. competitive
B. irreversible
C. non-competitive
D. reversible

36. Which one of the following is the first electron accepter from $FADH_2$ during electron transport chain?

- **A. Coenzyme Q**
- **B. Cytochrome a**
- **C. Cytochrome b**
- **D. Cytochrome c**

37. Which one of the following is anaerobic bacterium?

- **A. *Campylobacter***
- **B. *E. coli***
- **C. *Pseudomonas***
- **D. *Spirochete***

38. Which one of the following hormones has greater influence on peripheral vasoconstriction with net effect in the rise of blood pressure?

- **A. Antidiuretic hormone**
- **B. Epinephrine**
- **C. Nor-epinephrine**
- **D. Thyroid stimulating hormone**

39. At the end of ileum, there is a/an _____ sphincter that opens and closes time to time to allow a small amount of residue to enter the large intestine.

- **A. hepatic**
- **B. cardiac**
- **C. ileocolic**
- **D. pyloric**

40. Which one of the following was key point of Darwinism?

- **A. Decent with modification**
- **B. Endosymbiont hypothesis**
- **C. Inheritance of acquired characters**
- **D. Use and disuse of organs**

41. Which one of the following chemicals in blood circulation is the cause of inflammation in upper respiratory tract?

A. Acetyl amine
B. Ampicillin
C. Histamine
D. Tetracycline

42. Hemophilia type A and B zigzag from _____ grandfather through a carrier daughter to a _____.

A. maternal, granddaughter
B. maternal, grandson
C. paternal, granddaughter
D. paternal, grandson

43. At which of the following reactions of glycolysis, ATP is NOT involved directly?

A. When 1,3-Bisphosphoglycerate is converted into 3-phosphoglycerate
B. When Fructose 6-phospate is converted into fructose 1,6-bisphosphate
C. When glucose is converted into glucose 6-phosphate
D. When glyceraldehyde 3-phosphate is converted into 1,3-Bisphosphoglycerate

44. Which one of the following is NOT the bacteria?

A. *Acanthurus nigrofuscus*
B. *Epulopiscium fishelsoni*
C. *Hyphomicrobium*
D. *Mycoplasma Spp*

45. Groups of ribosomes associated with rough endoplasmic reticulum and Golgi apparatus present in the cell body of neurons, is termed as _____.

A. Axoplasm
B. Nissl's granules
C. Node
D. Polysomes

46. Lungs are covered with double layered thin membranous sacs called _____.

A. Epicardium
B. Larynx
C. Parabronchi
D. Pleura

47. Which one of the following monosaccharides is a hexose-aldehyde form of sugar?

A. Fructose
B. Galactose
C. Glucose
D. Ribose

48. In the roots, apoplast pathway becomes discontinuous in the endodermis due to the presence of _____.

A. casparian strips
B. hydathodes
C. pericyclic
D. plasmodesmata

49. Which of the following glands is mainly related to the secretion of stress hormones?

A. Adrenal gland
B. Parathyroid gland
C. Pituitary gland
D. Thymus gland

50. Which one of the following organelles is ONLY present in Cyanobacteria?

A. Heterocyst
B. Lysosomes
C. Mitochondria
D. Ribosomes

51. Which of the following conjugate molecules are present as surfactants in respiratory distress syndrome?

A. Glycolipids
B. Glycoproteins
C. Lipopolysaccharides
D. Lipoproteins

52. In *Drosophila*, the heterozygote(w/w^+) exceeds in quality of fluorescent pigment in eyes than wild(w^+/w^+) or white eye (w/w), this kind of dominance is termed as _____.

A. Co-Dominance
B. Complete Dominance
C. Incomplete Dominance
D. Over Dominance

53. In human testes, spermatozoa are present in _____.

A. epididymis
B. interstitial cells
C. seminiferous tubules
D. sertoli cells

54. Which one of the following types of phosphorylation occurs in electron transport chain, when NADH transfer electrons to coenzyme Q in inner mitochondrial membrane?

A. Cyclic-Phosphorylation
B. Non-cyclic Phosphorylation
C. Oxidative Phosphorylation
D. Substrate level Phosphorylation

55. Gall stones are mostly made up of _____.

A. Calcium
B. Calcium Phosphate
C. Cholesterol
D. Proteins

56. Which one of the following allows the exchange of RNA and protein between the nucleus and cytoplasm?

A. Nuclear matrix
B. Nuclear pores
C. Nucleolus
D. Nucleoplasm

57. The side of sheath attached to head region in bacteriophage is termed as _____.

A. Capsid
B. Collar
C. Core
D. End plate

58. During resting membrane potential, K^+ are _____ higher in concentration inside than outside the membrane surface.

A. ten-times
B. fifteen-times
C. twenty times
D. twenty-five times

59. Which one of the following bones is NOT the part of eye orbit?

A. Ethmoid
B. Lacrimal
C. Sphenoid
D. Zygomatic

60. Lock and key model (1890), was modified by _____.

A. Emil Fischer
B. Erwin Chargaff
C. Koshland
D. Lorenz Oken

61. Which of the following part of phospholipids constitutes hydrophobic zone in plasma membrane?

A. Cholesterol
B. Fatty acid tail
C. Glycolipids
D. Phosphate head

62. Which of the following types of salivary glands are located behind the jaws?

- **A. Maxillary glands**
- **B. Parotid glands**
- **C. Sublingual glands**
- **D. Submaxillary glands**

63. Which one of the following blood vessels has larger bore, thin walls, and without pulse?

- **A. Aorta**
- **B. Arteries**
- **C. Capillaries**
- **D. Veins**

64. During which stage of bacteriophage replication, lysozyme is involved?

- **A. Adsorption**
- **B. Attachment**
- **C. Multiplication**
- **D. Penetration**

65. Which of the following proteins do NOT exhibit quaternary structure?

- **A. Actin**
- **B. Haemoglobin**
- **C. Insulin**
- **D. Myoglobin**

66. When a person is exposed to HIV, becomes ill but survive, as a result the immunity developed against disease is called _____.

- **A. Artificial Active Immunity**
- **B. Artificial Passive Immunity**
- **C. Natural Active Immunity**
- **D. Natural Passive Immunity**

67. Which one of the following sexually transmitted disease attack on T_4 Lymphocytes?

A. AIDS
B. Genital Herpes
C. Gonorrhea
D. Syphilis

68. When muscle contract, Z-line is _____, I-band _____ and H-zone disappear.

A. closer, enlarged
B. closer, shorten
C. distant, enlarged
D. distant, shorten

69. Which compound is used as a reference for calculating the extent of stability of benzene?

A. Cyclohexane
B. Cyclohexene
C. 1,3,5-cyclohexene
D. 1,3,5-cyclohexatriene

70. When CO_2 reacts with propyl magnesium chloride followed by acid hydrolysis, the product formed is _____.

A. Butanoic acid
B. Ethanoic acid
C. Pentanoic acid
D. Propanoic acid

71. What is the range of atomic numbers of the 3d series of transition elements?

A. 20-30
B. 21-30
C. 22-30
D. 24-30

72. What will be the number of atoms in 2 moles of water molecule?

A. $6.02X10^{23}$
B. $1.24X10^{24}$
C. $1.92X10^{24}$
D. $3.61X10^{24}$

73. Consider a reaction of A into B, if K value is $3x10^{-12}$ at 200°C then what will be the value of K at 250°C?

A. $K = 9 \times 10^{-3}s^{-1}$
B. $K = 12 \times 10^{-3}s^{-1}$
C. $K = 6 \times 10^{-12}s^{-1}$
D. $K = 15 \times 10^{-12}s^{-1}$

74. For boiling point, vapor pressure of liquid DOES NOT depend upon _____.

A. amount of liquid
B. external atmospheric pressure
C. intermolecular forces
D. type of bond

75. NaCl is an example of _____ arrangement of crystal lattice.

A. Monoclinic
B. Octahedral
C. Tetrahedral
D. Triangular

76. Formula for partial pressure calculation of any component in mixture of gases is _____.

A. $P_i = P_t / X_i$
B. $P_i = P_t + X_i$
C. $P_i = P_t R$
D. $P_i = P_t X_i$

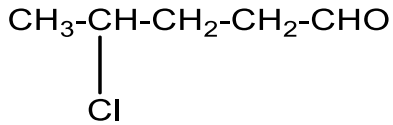
77. What will be the internal energy of a system at constant volume?

A. $\Delta E = 0$
B. $\Delta E = q + P$
C. $\Delta E = q + P\Delta V$
D. $\Delta E = q_v$

78. Which of the following law helps to calculate the absolute temperature?

A. Avogadro's Law
B. Boyle's Law
C. Charles Law
D. Dalton's Law

79. The IUPAC name of given organic compound is _____.



A. 2-Chloropentanal
B. 2-Chloropentanol
C. 4-Chloropentanal
D. 4-Chloropentanol

80. Which type of reaction will be occur, when an alcohol reacts with a carboxylic acid?

A. Dehydration reaction
B. Dehydrogenation reaction
C. Esterification reaction
D. Reduction reaction

81. Diamagnetic behavior of Flourine molecule is due to presence of _____.

A. paired electrons in d orbitals
B. paired electrons in p orbitals
C. unpaired electrons in d orbitals
D. unpaired electrons in p orbitals

82. Metallic character of alkaline earth metals _____ down the groups.

A. decreases
B. gradually increases then decreases
C. increases
D. remains same

83. Which of the following is the unit of rate of reaction?

A. $(mol\text{-}dm^3)^{-1}s^1$
B. $mol(dm^3)s^{-1}$
C. $mol(dm^3)^{-1}s$
D. $mol(dm^3)^{-1}s^{-1}$

84. If percentage yield of chemical reaction is 60%, actual yield is 15g, what is its theoretical yield?

A. 18g
B. 20g
C. 25g
D. 30g

85. The IUPAC name of Malonic acid $CH_2(COOH)_2$ is _____.

A. 1,2-Ethanedioic acid
B. 1,3-Propanedioic acid
C. 1,4-butanedioic acid
D. 1,6-Hexadecanoic acid

86. What is the IUPAC name of given compound?
CH_3-CH=CH-CH_2-C≡CH

A. 2-Hexen-5-yne
B. 2-Hexen-6-yne
C. 4-Hexen-1-yne
D. 5-Hexen-1-yne

87. Which of the following metal forms superoxide when reacted with oxygen?

A. Beryllium
B. Lithium
C. Magnesium
D. Potassium

88. Chemical equilibrium given below will shift to backward direction by _____.

$$2NO + O_2 \rightleftharpoons 2NO_2 + \text{Heat}$$

A. decreasing pressure and increasing temperature
B. decreasing the temperature
C. increasing the concentration of NO & O_2
D. increasing the pressure

89. Which of the following element will show electronic configuration of outermost shell like ns^2, np^5?

A. C
B. Cl
C. S
D. Si

90. What will be formula of work, when work is done on the system by the surrounding?

A. W = - P/ΔV
B. W = - PΔV
C. W = P/ΔV
D. W = PΔV

91. Which product is formed by the reaction of phenol with concentrated nitric acid?

A. Adipic acid
B. m-Nitrophenol
C. Picric acid
D. p-Nitrophenol

92. What is the percentage mass ratio of carbon and hydrogen in benzene?

A. 1:1
B. 3:1
C. 6:1
D. 12:1

93. Transition element Vanadium mostly act as _____.

A. Amphoteric
B. Neutral
C. Oxidizing agent
D. Reducing agent

94. Which type of redox reaction takes place at cathode of the electrochemical cell?

A. Decomposition
B. Dissociation
C. Oxidation
D. Reduction

95. Which type of catalyst is used during electrophilic substitution reactions of benzene?

A. Amphoteric
B. Lewis's acid
C. Lewis's base
D. Transition metals

96. The correct stability order of M^{+4} cations is _____.

A. $Ge^{+4} < Pb^{+4} < Sn^{+4}$
B. $Ge^{+4} < Sn^{+4} < Pb^{+4}$
C. $Ge^{+4} > Pb^{+4} > Sn^{+4}$
D. $Ge^{+4} > Sn^{+4} > Pb^{+4}$

97. Which type of isomerism is shown by fumaric acid and maleic acid?

A. Functional group isomers
B. Geometrical isomers
C. Optical isomers
D. Position isomers

98. Unimolecular nucleophilic substitution reaction involves _____.

A. 1^{st} order kinetics
B. 2^{nd} order kinetics
C. 3^{rd} order kinetics
D. zero order kinetics

99. What will be the molarity of HCl solution with pH=4?

A. 0.0001
B. 0.0004
C. 0.004
D. 4.0

100. If weak acid is diluted with water, then H^+ ions concentration will _____.

A. decrease
B. gradually decreases then increase
C. increase
D. remain same

101. Which one the following is NOT an example of electrochemical cell?

A. Electrolytic cell
B. Photovoltaic cell
C. Solar cell
D. Voltic cell

102. The saturated alicyclic hydrocarbons have the general formula _____.

A. C_nH_{2n}
B. C_nH_{2n+1}
C. C_nH_{2n+2}
D. C_nH_{2n-2}

103. If half-life of a chemical reaction is 30 minutes, how much time is required for its 87.5% completion?

A. 30 min
B. 60 min
C. 90 min
D. 120 min

104. The oxidation of methanal results in the formation of _____.

A. Acetic acid
B. Formic acid
C. Methanol
D. Propanoic acid

105. Which of the following metal hydroxide is the strongest base?

A. $Ca(OH)_2$
B. LiOH
C. $Mg(OH)_2$
D. NaOH

106. Which one of the following molecules has zero dipole movement?

A. Ammonia
B. Carbon dioxide
C. Hydrogen fluoride
D. Water

107. How many electrons will be accommodated in sub-shell with Azimuthal quantum number $\ell = 2$?

A. 2
B. 6
C. 10
D. 12

108. Which of the following mixture will constitute the buffer solution?

A. Acetic acid & sodium acetate
B. Acetic acid & ammonia
C. Acetic acid and its ammonium acetate
D. Ammonia & ammonium acetate

109. What will be the IUPAC name of neopentane?

A. 2,2-Dimethypentane
B. 2,2-Dimethypropane
C. 2-Methylbutane
D. 3-Methylbutane

110. According to law of mass action, $K_p > K_c$ when reaction occurs with _____.

A. decrease in volume on product side
B. increase in volume on product side
C. increase in volume on reactant side
D. simultaneous increase and decrease of product

111. The correct reactivity order of the following compounds towards nucleophile is _____.

A. H-CO-H < H-CO-R < R-CO-R
B. H-CO-H > H-CO-R > R-CO-R
C. H-CO-R < H-CO-H < R-CO-R
D. H-CO-H > R-CO-R > H-CO-R

112. The anion derived by deprotonation of an alcohol acts as _____.

A. Acidic moiety
B. Electrophile
C. Lewis acid
D. Lewis base

113. Who stated that enthalpy change in a chemical reaction is same whether the reaction takes place in single step or in several steps?

A. Arrhenius' Law
B. Born Haber's Law
C. Dalton's Law
D. Hess's Law

114. Which type of substituent will increase the acidic strength of phenols?

A. Electron donating substituents
B. Electron withdrawing substituents
C. Lewis's bases
D. Nucleophiles

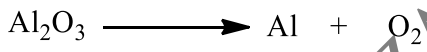
115. Water is liquid at room temperature as compared to ammonia and hydrogen disulphide due to presence of _____.

A. Co-ordinate covalent bond
B. Hydrogen bond
C. Ionic bond
D. Metallic bond

116. Which of the following is an example of molecular solid?

A. Al_3N_2
B. CO_2
C. CsF
D. NaCl

117. What will be mole ratio of Al to O_2 after balancing equation given below?



A. 1:1
B. 2:3
C. 3:4
D. 4:3

118. Which product will be formed finally on the reduction of acetic acid with $LiAlH_4$?

A. Ethanal
B. Ethane
C. Ethanoic acid
D. Ethanol

119. The melting and boiling point of alcohols are high as compared to corresponding alkanes due to _____.

A. Dipole-dipole interaction
B. Hydrogen bonding
C. Ionic interactions
D. Van der Waal interactions

120. How many moles of oxygen gas are needed for combustion of 2 moles of propane?

A. 08
B. 10
C. 12
D. 14

121. The e/m ratio of proton is _____ that of an electron.

A. 1837 times greater than
B. equal to
C. greater than
D. smaller than

122. At constant volume, the heat supplied to a system is always equal to its _____.

A. bond energy
B. enthalpy change
C. heat of sublimation
D. internal energy change

123. The gradient/slope of I-V (Current-Potential) graph provides _____.

A. Conductance
B. Conductivity
C. Resistance
D. Resistivity

124. Under which condition Newton performed experiment for calculation of speed of sound in air?

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

125. Which one of the following is an example of transverse waves?

A. Sound waves
B. Water waves
C. Waves associated with electron
D. Waves in spring

126. Diode is a/an _____ device, which can be used for rectification process.

A. insulating
B. perfect conducting
C. perfect insulating
D. semiconductor

127. The SI-unit of capacitance of capacitor is Farad, it can also be expressed as _____.

A. $\frac{A^2s^2}{Nm}$

B. $\frac{A^2s^3}{Nm}$

C. $\frac{A^3s}{Nm}$

D. $\frac{A^2s}{Nm}$

128. The strength of radiation source is indicated by its activity measured in Becquerel. So, 10 Becquerel is equal to _____ decay per second.

A. 10
B. 100
C. 1000
D. 10000

129. If 60A current passes through a wire in 60 seconds. What will be the value of charge existing in the wire?

A. 4.6×10^{-3} C
B. 3.6×10^{-3} C
C. 2.6×10^{3} C
D. 3.6×10^{3} C

130. What will be the fundamental frequency in a stretched string, when it is plucked at central point while it has a speed of 48 ms^{-1} with string length of 8m?

A. 3 Hz
B. 6 Hz
C. 9 Hz
D. 12 Hz

131. At what value of angle between the magnetic field intensity and vector area, the magnetic flux becomes zero?

A. 0°
B. 30°
C. 45°
D. 90°

132. The kinetic energy of emitted electrons in photoelectric effect can be increased by increasing _____.

A. applied potential of electrodes
B. frequency of electromagnetic wave
C. intensity of incident light
D. momentum of incident photon

133. Which of the following rule helps us to detect the direction of angular velocity?

A. Head to tail rule
B. Kirchhoff rule
C. Left hand rule
D. Right hand rule

134. Which one of the following is the best condition for performing maximum work by any thermodynamic system?

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

135. The acceleration can be determined by the gradient of _____.

A. Displacement-time graph
B. Force-time graph
C. Speed-time graph
D. Velocity-time graph

136. Alternating current generator is a device which is used to convert _____ into _____.

A. Chemical energy, Electrical energy
B. Chemical energy, Mechanical energy
C. Electrical energy, Mechanical energy
D. Mechanical energy, Electrical energy

137. Electron-volt is the unit of _____.

A. Charge
B. Current
C. Electric potential
D. Energy

138. The electric flash attachment for a camera contains a capacitor for storing the energy used to produce the flash. In one such unit, the potential difference between the plates of 20F capacitor is 5V. Calculate the energy that is used to produce the flash?

A. 250 J
B. 310 J
C. 500 J
D. 650 J

139. Cancerous thyroid is treated with _____.

A. Chlorine-36
B. Coblt-60
C. Iodine-131
D. Radium-226

140. The rate of change of magnetic flux is measured in _____.

A. Coulomb
B. Ohm
C. Volt
D. Watt

141. Two bodies with kinetic energies having ratio of 4:1, are moving with equal linear momentum. The ratio of their masses is _____.

A. 1:1
B. 1:2
C. 1:4
D. 4:1

142. The Lyman series contain the wavelengths in the _____ of the hydrogen spectrum.

A. far-infrared region
B. infrared region
C. ultraviolet region
D. visible region

143. The rate of change of linear momentum is equal to _____.

A. Force
B. Impulse
C. Torque
D. Velocity

144. The slope of velocity-time graph gradually decreases, then the body is said to be moving with _____.

A. Negative acceleration
B. Positive acceleration
C. Uniform velocity
D. Variable acceleration

145. In British Engineering system, the unit of power is horsepower. Numerically 1000 hp is equal to _____.

A. 7460 watts
B. 74600 watts
C. 746000 watts
D. 7460000 watts

146. Kilowatt hour is the commercial unit of electrical energy. 1Kwh is equal to _____.

A. 3.6 meV
B. 3.6 MeV
C. 3.6 J
D. 3.6 MJ

147. If kinetic energy of a body becomes four times of the initial value, then the new momentum will _____.

A. become twice of its initial value
B. become three times of its initial value
C. become four times of its initial value
D. remain constant

148. The turns ratio of a step-up transformer is 5. A current of 20A is passed through its primary coil at 220V. Calculate the value of voltage in secondary coil?

A. 1000V
B. 1025V
C. 1050V
D. 1100V

149. In any electric circuit, power output (P_{out}) will be maximum when _____.
(Whereas R = External Resistance, r = Internal Resistance)

A. R = 0 but r $\neq$ 0
B. r = 0 but R $\neq$ 0
C. R = ∞ and r = 0
D. R = r

150. A man pulls a trolley through a distance of 50 m by applying a force of 100N, which makes an angle of 60^o with x-axis. Calculate the work done by the man? ($Cos60^o=0.5$)

A. 2500 J
B. 5340 J
C. 6430 J
D. 7120 J

151. In an isothermal condition of any thermodynamic system, the change in internal energy _____.

A. becomes maximum
B. becomes minimum but greater than zero
C. becomes zero
D. remains constant

152. Which one of the following factors is the best for calculation Compton's shift?

A. Angular spin of electron
B. Energy of electron
C. Energy of photon
D. Scattering angle of photon

153. The instantaneous acceleration of an object travelling with uniform speed in a circle directed towards the center of circle is referred as _____.

A. Angular acceleration
B. Centrifugal acceleration
C. Centripetal acceleration
D. Tangential acceleration

154. If the half-life of any radioactive nucleus is 0.693 year, what will be the value of decay constant?

A. $0.001\ s^{-1}$
B. $0.01\ s^{-1}$
C. $0.1\ s^{-1}$
D. $1\ s^{-1}$

155. Which one of the following is the SI-unit of angular displacement?

A. Degree
B. Radian
C. Revolution
D. Steradian

156. By increasing the temperature of medium about 1^oC, the speed of sound is increased up to _____.

A. $0.41\ ms^{-1}$
B. $0.51\ ms^{-1}$
C. $0.61\ ms^{-1}$
D. $0.71\ ms^{-1}$

157. At what angle made by projectile with x-axis, we can get $1/4^{th}$ value of maximum height achieved by projectile?

A. 30^o
B. 45^o
C. 60^o
D. 90^o

158. Which one of the following materials has negative temperature coefficient of resistance?

A. Copper
B. Germanium
C. Sulphur
D. Zinc

159. There is no net transfer of energy by particles of medium in _____.

A. Longitudinal wave
B. Progressive wave
C. Stationary wave
D. Transverse wave

160. In which of the following condition, the thermodynamic system DOES NOT perform any work?

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

161. At what angle made by scattered photon with x-axis, we can get maximum value of Compton's shift?

A. 0^o
B. 45^o
C. 90^o
D. 180^o

162. Which of the following series of hydrogen spectrum lies in visible region?

A. Balmer
B. Bracket
C. Lyman
D. Paschen

163. How many electrons are there in one Coulomb charge?

A. 6.25×10^{15}
B. 6.25×10^{16}
C. 6.25×10^{17}
D. 6.25×10^{18}

164. The SI-unit of magnetic flux is weber. Weber can also be expressed as _____.

A. Joule per ampere
B. Joule per coulomb
C. Newton per ampere
D. Newton per coulomb

165. The electrostatic force between two point-charges is independent of one of the following quantities?

A. Distance between charges
B. Magnitude of charges
C. Medium between charges
D. Temperature of charges

166. What will be the time period of wave generator if it produces 1000 waves in 10 seconds?

A. 0.001s
B. 0.01s
C. 0.02s
D. 0.1s

167. The quantity of motion present in a body can be measured by _____.

A. Acceleration
B. Momentum
C. Speed
D. Velocity

168. The SI-unit of relative permittivity is/has _____.

A. $\frac{C^2}{N.m^2}$

B. $\frac{C^{-1}}{N.m^{-2}}$

C. $\frac{C^{-2}}{N.m}$

D. no Unit

169. A coil of 100 turns is linked by a flux of 20 mWb. If this flux is reversed in a time of 2 ms, calculate the average induced emf in the coil?

A. 1000 volts
B. 2000 volts
C. 3000 volts
D. 4000 volts

170. The Lenz's law of electromagnetic induction is in accordance with law of conservation of _____.

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

171. Which one of the following is the SI-unit of conventional current in a conductor?

- **A. Ampere**
- **B. Coulomb**
- **C. Ohm**
- **D. Ohm meter**

172. How much phase difference is required between two waves to form destructive interference?

- **A. 0°**
- **B. 45°**
- **C. 90°**
- **D. 180°**

173. Which one of the following is the unit of electric field intensity?

- **A. Newton per Ampere**
- **B. Newton per volt**
- **C. Volt per Coulomb**
- **D. Volt per meter**

174. A rotating pulley completes twelve revolutions in 4 seconds, calculate the average angular velocity of rotating pulley in revelation per second?

- **A. 3**
- **B. 4**
- **C. 5**
- **D. 6**

175. Tesla is the SI-unit of magnetic field intensity. Tesla can also be expressed as _____.

- **A. $N^{-1}A^{-1}m^{-1}$**
- **B. $N^{-1}Am^{-1}$**
- **C. $NA^{-1}m^{-1}$**
- **D. NAm^{-1}**

176. In one dimensional elastic collision of two bodies of same masses, what will happen if moving body collides with the mass which is initially at rest?

A. The collision would become inelastic
B. Their velocities will be interchanged
C. Their velocities will remain same
D. Velocities of both bodies will be zero

ENGLISH

Complete the sentences by choosing the best option, from the given lettered choices (A to D) below each.

177. Supply the correct preposition:

I was almost back _____ my classroom door when I heard a strange noise.

A. at
B. by
C. in
D. to

178. Supply the correct form of verb:

Farah has planned _____ before the next term.

A. resign
B. resignation
C. resigning
D. to resign

179. Identify the type of sentence given below:

The caliph noticed the merchant.

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

180. Supply the correct preposition:

Have you been in this company _____ six weeks?

A. during
B. for
C. just
D. since

181. Identify the correct indirect form for the sentence given below:

The speaker said to the audience, "Will you listen to me?"

A. The speaker asked the audience if they had listened to him.
B. The speaker asked the audience if they will listen to him.
C. The speaker asked the audience if they would listen to him.
D. The speaker asked the audience to listen to him.

182. Identify the correct spelling:

A. Discremination
B. Discrimenation
C. Discrimination
D. Disscrimnation

183. Supply the correct antonym for the capitalized word:

Your RECKLESS behavior is not acceptable. You have to be more _____.

A. careful
B. happy
C. hardworking
D. kind

184. Complete the sentence using the appropriate punctuation mark:

Punishment brings wisdom ____ it is the healing art of wickedness.

A. ,
B. -
C. ;
D. :

185. Identify the figure of speech in the following sentence:

He is considered the black sheep of the family.

A. Alliteration
B. Imagery
C. Metaphor
D. Simile

186. Supply the correct form of verb:

We had taken our meal before we _____.

A. had left
B. have left
C. left
D. were leaving

187. Supply the correct antonym for the capitalized word:

What can be done to ALLEVIATE the situation?

A. Aggravate
B. Anticipate
C. Clear
D. Manipulate

188. Supply the correct synonym for the capitalized word:

An ORTHODOX is a _____ person.

A. clever
B. confident
C. confused
D. conservative

189. Identify the correct passive form for the sentence given below:

The guard did not open the gate.

A. The gate did not open by the guard.
B. The gate had not been opened by the guard.
C. The gate was not being opened by the guard.
D. The gate was not opened by the guard.

190. Supply the correct synonym for the capitalized word:

The new government brought STUPENDOUS changes in the economy and _____ its critics.

A. destroyed
B. fooled
C. involved
D. surprised

191. The underlined part in the sentence given below is an adverbial clause of _____:
<u>Although Mehran is hardworking</u>, yet he failed.

A. Concession
B. Condition
C. Manner
D. Reason

192. Supply the correct form of verb:

Had I known the answer I _____ it.

A. got written
B. have written
C. would have written
D. wrote

Questions 193-194

"This is the way, Jess," said my father, pointing with his cane across the deep valley below us. "I want to show you something you've not seen for many years!"
"Isn't it too hot for you to do much walking?" I wiped the streams of sweat from my face to keep them from stinging my eyes.
I didn't want to go with him. I had just finished walking a half mile uphill from my home to his. I had carried a basket of dishes to Mom. There were two slips in the road and I couldn't drive my car and I knew how hot it was. It was 97 in the shade. I knew that from January until April my father had gone to eight different doctors. One of the doctors had told him to get a taxi to take him home. But my father walked home five miles across the mountain and told my Mom what the doctor had said. Forty years ago, a doctor had told him the same thing. And he had lived to raise a family of five children. He had done so much hard work in those years as any man.

193. The sentence "It was 97 in the shade." refers to the _____.

- **A. age**
- **B. distance**
- **C. temperature**
- **D. year**

194. The narrator has _____ siblings.

- **A. four**
- **B. five**
- **C. six**
- **D. no**

LOGICAL REASONING

The high school math department needs to appoint a new chairperson on the basis of seniority.
Ms. Madiha is less senior than Mr. Tanvir but more than Ms. Aiyza.
Mr. Rehan is more senior than Ms. Madiha but less than Mr. Tanvir.
Mr. Tanvir doesn't want the job.

195. Who will be the new chairperson of math department?

A. Mr. Rehan
B. Mr. Tanvir
C. Ms. Aiyza
D. Ms. Madiha

196. What are the missing alphabets in the sequence EZFA, GBHY, IXJC, _____?

A. KDLW
B. KLDW
C. KWLD
D. LDKW

197. "All practical numbers are even" is a false statement then the true statement is _____.

A. all practical numbers are odd
B. some practical numbers are not even
C. some practical numbers are even
D. some practical numbers are not odd

198. In a group of 100 players, 70 play football, 50 play hockey, and 55 play cricket. 30 play both hockey and cricket, 25 play both football and hockey and 20 play all three games. How many players play both football and cricket?

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

199. A customer has filed a complaint about your product, stating it does NOT meet his expectation. What is your course of action?

- **A. Argue with the customer about the validity of their complaint**
- **B. Customer complaint is not filed within the time limit**
- **C. Offer a replacement**
- **D. Tell the customer it's his fault for not using the product correctly**

200. Statements:

I. Large numbers of people have fallen sick after consuming sweets from a particular shop in the locality.

II. Major part of the locality is flooded and has become inaccessible.

- **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 causes.**