

## SZABMU MDCAT PAPER BIOLOGY

1. Each granum consists of \_\_\_\_\_ thylakoids:  
A. 40-60  
**B. 25-50**  
C. 50-70  
D. 100-200
2. The terminal ends of chromosomes are called:  
A. Satellite  
B. Kinetochore  
C. Nucleolar organizers  
**D. Telomeres**
3. Which organelles would be more abundant in a secretory cell than non-secretory cells?  
A. Lysosomes  
**B. Golgi complex**  
C. Vacuoles  
D. Centrioles
4. The structure which disappears during cell division is:  
A. Vacuole  
B. Lysosome  
**C. Nucleolus**  
D. Endoplasmic reticulum
5. The enzyme ATP synthase is located on the membrane of:  
A. Nucleus  
**B. Mitochondria**  
C. Lysosome  
D. Vacuole
6. Intracellular digestion of food is done by the organelle:  
A. Vacuole  
**B. Lysosome**  
C. Golgi apparatus  
D. Ribosome
7. Which axon would transmit an action potential most rapidly?  
A. 1mm diameter neuron lacking myelin  
B. 1mm diameter neuron with myelin  
C. 2mm diameter neuron lacking myelin  
**D. 2mm diameter neuron with myelin**
8. Vasopressin is an example of:  
A. Steroid hormone  
B. Catecholamine  
**C. Peptide hormone**  
D. Glycoprotein
9. Which function is not controlled by hypothalamus?  
A. Regulate hunger  
B. Regulate sleep

- C. Regulate water balance
  - D. **Storing long time memories**
10. Posterior lobe of pituitary gland produces:
- A. **Oxytocin**
  - B. Thyroid Stimulating Hormone (TSH)
  - C. Adreno Corticotropic Hormone (ACTH)
  - D. Follicle Stimulating Hormone (FSH)
11. In neurons, the message is transmitted across synapse in the form of chemical messenger called:
- A. Communication
  - B. **Neurotransmitter**
  - C. Nerve impulse
  - D. Noci receptors
12. Microscopic gap between the two neurons is called:
- A. Synapsis
  - B. **Synapse**
  - C. Collapse
  - D. Synaptic knob
13. In a reflex arc, the cell body of sensory neuron is located in:
- A. Ventral root ganglion
  - B. Gray matter of spinal cord
  - C. White matter of spinal cord
  - D. **Dorsal root ganglion**
14. The feelings and emotions of love and hate are controlled by:
- A. **Amygdalae**
  - B. Hippocampus
  - C. Thalamus
  - D. Hypothalamus
15. Which of the following is TRUE about Amoebae?
- A. They have flagella
  - B. They are multicellular
  - C. They do not cause any disease in humans
  - D. **They move by forming specialized cytoplasmic projections called pseudopodia**
16. Negative feedback mechanism is the characteristic of which class?
- A. Class Fish
  - B. Class Amphibia
  - C. Class Reptilia
  - D. **Class Mammalia**
17. The catalytic activity of an enzyme is restricted to its small portion:
- A. **Active site**
  - B. Passive site
  - C. Allosteric site
  - D. Regulation site
18. The maximum enzymatic activity of trypsin is shown at:

- A. pH 2
  - B. pH 4
  - C. pH 6
  - D. pH 8**
19. Most enzyme have an optimum temperature of around:
- A. 30 °C
  - B. 40 °C**
  - C. 50 °C
  - D. 20 °C
20. Enzyme work by lowering the \_\_\_\_\_ of the reaction they catalyze:
- A. Kinetic energy
  - B. Activation energy**
  - C. Heat energy
  - D. Potential energy
21. In terms of enzyme action, maximum temperature refers to a temperature at which:
- A. Enzyme start to denature**
  - B. Enzyme start to re-nature
  - C. Enzyme work best
  - D. Enzyme are reactivated
22. \_\_\_\_\_ reduces the enzyme activity by blocking the substrate from entering the active site due to similar shapes:
- A. Competitive inhibitors**
  - B. Non-competitive inhibitors
  - C. Co-enzymes
  - D. Activators
23. He presented the theory of origin of species by means of natural selection:
- A. Lamarck
  - B. Linnaeus
  - C. Hardy-Weinberg
  - D. Darwin**
24. Among the oldest known fossils comes the:
- A. Prokaryotes**
  - B. Amphibians
  - C. Reptiles
  - D. Fishes
25. What is the contribution of hormone cholecystokinin?
- A. Facilitates bile release from gall bladder**
  - B. Mucus release from stomach
  - C. Production of bile from liver
  - D. Gastric juice release from stomach
26. Which of the following is not a component of bile?
- A. Digestive enzymes**
  - B. Salts
  - C. Mucus

- D. Lecithin
27. The first chemical digestion of proteins takes place in the:
- A. Mouth
  - B. Esophagus
  - C. Stomach**
  - D. Intestine
28. Select the duration of cardiac cycle:
- A. 0.6 sec
  - B. 0.4 sec
  - C. 0.7sec
  - D. 0.8 sec**
29. Select the hormone which increases the activity of parietal and chief cells:
- A. Cholecystokinin
  - B. Secretin
  - C. Gastrin
  - D. Acetylcholine**
30. The pathways of water transport in which water moves through plasmodesmata is:
- A. Apoplast
  - B. Symplast**
  - C. Vacuolar
  - D. Ascent of sap
31. Enzyme trypsinogen is activated by:
- A. HCL
  - B. Pepsin
  - C. Enterokinase**
  - D. Erypsin
32. Emulsification of large fat globules is facilitated by:
- A. Lipase
  - B. Bile salts**
  - C. Trypsin
  - D. Chymotrypsin
33. The area between the two lungs is called:
- A. Periosteum
  - B. Infundibulum
  - C. Mediastinum**
  - D. Hilum
34. In human heart, the left atrium receives:
- A. The Superior Vena Cava
  - B. The Inferior Vena Cava
  - C. The Coronary Sinus
  - D. The four Pulmonary Veins**
35. All viruses are:
- A. Autotrophs
  - B. Heterotrophs

- C. **Parasites**
  - D. Predators
36. Which of the following is transmitted through infected blood and hypothermal syringes?
- A. **HIV**
  - B. Influenza Virus
  - C. Morbilli Virus (Measles)
  - D. Vibrio Virus (Cholera)
37. Light independent phase of photosynthesis involves:
- A. **Formation of energy rich carbohydrates**
  - B. Hydrolysis of water
  - C. ATP generation
  - D. Production of reducing molecules
38. The element whose electrons are excited during light reaction of photosynthesis is:
- A. Carbon
  - B. Hydrogen
  - C. **Magnesium**
  - D. Nitrogen
39. Select an example of fibrous protein:
- A. Enzymes
  - B. **Collagen**
  - C. Hemoglobin
  - D. Hormones
40. Which function is NOT performed by proteins?
- A. Providing structural support to cell
  - B. Catalyzing biochemical reactions
  - C. Transporting materials across cell membrane
  - D. **Providing insulation against heat loss**
41. Three hydrophobic fatty acid tails and a glycerol molecule join to form a:
- A. Monoglyceride
  - B. Diglyceride
  - C. **Triglyceride**
  - D. Phospholipid
42. Which bond is the potential source of chemical energy for cellular activities?
- A. C=O
  - B. **C-H**
  - C. C-R
  - D. C-N
43. Which property of water enables it to act as temperature stabilizer in living organisms?
- A. High polarity
  - B. Being non polar
  - C. **High specific heat capacity**
  - D. High heat of vaporization
44. Which molecules do not contribute to the formation of biological membranes?
- A. Glycoproteins

- B. Glycolipids
  - C. Phospholipids
  - D. Nucleoproteins**
45. Which of the following carbohydrates are sweetest among all?
- A. **Monosaccharides**
  - B. Disaccharides
  - C. Oligosaccharides
  - D. Polysaccharides
46. Which organelles of animal cells are called suicidal bags?
- A. Peroxisomes
  - B. Glyoxisomes
  - C. Lysosomes**
  - D. Food Vacuoles
47. Chemically, cell wall of fungi is made up of:
- A. Cellulose
  - B. Lignin
  - C. Chitin**
  - D. Murein
48. The organelle which provides neurotransmitters in the nervous pathway is:
- A. Glyoxisome
  - B. Peroxisome
  - C. Golgi apparatus**
  - D. Endoplasmic reticulum
49. The inner membrane of the mitochondria is folded to form finger like:
- A. Cisternae
  - B. Cristae**
  - C. Chromatin
  - D. Chloroplast
50. Adenylate cyclase, in the cell membrane acts as:
- A. Channel protein
  - B. Carrier protein
  - C. Enzyme**
  - D. Receptor
51. Glycogen, lipid droplets form the most important \_\_\_\_\_ of the cell.
- A. Cell organelles
  - B. Cell inclusions**
  - C. Cytoplasmic matrix
  - D. Non membranous organelles
52. Vaccination is an example of:
- A. Natural passive immunity
  - B. Natural active immunity
  - C. Acquired/Artificial active immunity**
  - D. Acquired/Artificial passive immunity
53. Lymphatic system contains all of the following organs / structures except:

- A. Lymphoid masses
  - B. Lymph vessels
  - C. Spleen
  - D. Lungs**
54. The unique macro-molecule in the bacterial cell wall is:
- A. Polysaccharides
  - B. Proteins
  - C. **Peptidoglycan**
  - D. Cholesterol
55. Transfer of genetic material from one bacterium to another through a third party usually bacteriophage is called:
- A. Conjugation
  - B. Transformation
  - C. **Transduction**
  - D. Transportation
56. All of the following are physical methods to control bacteria except:
- A. Sterilization
  - B. Boiling
  - C. Radiation
  - D. Antiseptics**
57. Which of the following helps in developing immunity against germs?
- A. Radiotherapy
  - B. Chemotherapy
  - C. **Vaccines**
  - D. Antibiotics
58. After fertilization, zygote takes \_\_\_\_\_ for its journey from fallopian tube to uterus:
- A. **6-7 days**
  - B. 3-6 days
  - C. 10-12 days
  - D. 12-15 days
59. The best temperature for spermatogenesis is:
- A. 37 °C
  - B. 30 °C
  - C. 32 °C
  - D. 35 °C**
60. In human females, FSH stimulates:
- A. **Follicle development**
  - B. Ovulation
  - C. Embryo implantation
  - D. Menstruation
61. Leydig cells in testes are responsible for:
- A. **Testosterone production**
  - B. FSH production
  - C. Sperm production

- D. Testosterone inhibition
62. The muscle contraction involve the breakdown of cross bridges of active myosin filaments due to the following process:
- ATP is oxidized
  - ATP is reduced
  - ATP is hydrolyzed**
  - ATP is synthesized
63. \_\_\_\_\_ is the inflammation of joints:
- Osteoarthritis**
  - Osteoporosis
  - Arteriosclerosis
  - Osteosclerosis
64. Tetany is caused by \_\_\_\_\_ in blood.
- Low  $\text{Ca}^{++}$**
  - High  $\text{Ca}^{++}$
  - Low  $\text{Mg}^{++}$
  - High  $\text{Mg}^{++}$
65. What is the function of myoglobin?
- Store oxygen**
  - Store  $\text{CO}_2$
  - Transport oxygen
  - Transport  $\text{CO}_2$
66. A joint in which ends of bones are covered with hyaline cartilage and held together by surrounding tube like capsule of dense fibrous tissue:
- Cartilaginous Joint
  - Synovial Joint**
  - Fibrous Joint
  - Immoveable Joint
67. These are the genes which tend to be inherited together and do not assort independently:
- Linked genes**
  - Dependent genes
  - Recombinant genes
  - Independent genes
68. Mendelian inheritance follows which form of dominance relation?
- Complete dominance**
  - Incomplete dominance
  - Co-dominance
  - Multiple allelic dominance

## PHYSICS

69. The unit of kinetic energy is same as that of:
- Work**
  - Power / Time
  - Time / Power
  - Work / Time



70. Which one provides centripetal force in a circular motion of a body?
- Vertical component of weight**
  - Horizontal component of weight
  - Weight of the body
  - Force of friction
71. How many radians are in one degree?
- 0.0174 rad**
  - 0.174 rad
  - 1.745 rad
  - 0.00174 rad
72. Which one of the following is the angular velocity of an electric motor if it rotates at 400 rpm?
- 51.2 rad/s
  - 41.9 rad/s**
  - 45.2 rad/s
  - 38.5 rad/s
73. The tension in string at top of vertical circle is:
- Zero**
  - mg
  - 2mg
  - 3mg
74. The centripetal force in terms of angular velocity is given by:
- $F_c = m r \omega$
  - $F_c = m r \omega^2$**
  - $F_c = m r \alpha^2$
  - $F_c = m r \alpha$
75. Which one of the following is angular speed in radian per hour for daily rotation of our earth?
- $2\pi$
  - $4\pi$
  - $\pi/6$**
  - $\pi/12$
76. Wavelength of wave is defined as:
- Distance between two consecutive crests**
  - Distance between two alternate crest
  - Distance between two alternate trough
  - Distance between two crest and two trough
77. Which of the following factor does not affect the speed of sound in air?
- Pressure**
  - Density
  - Temperature
  - Medium
78. Maximum displacement of particles from its mean position is called:
- Frequency

- B. **Amplitude**  
C. Wavelength  
D. Crest
79. The ultrasonic waves have frequency higher than:  
A. 20 Hz  
B. **20 KHz**  
C. 200 Hz  
D. 2000 KHz
80. The increase in the speed of sound for each degree rise above  $0^{\circ}\text{C}$  is:  
A. **0.61 m/s**  
B. 0.51 m/s  
C. 0.41 m/s  
D. 0.31 m/s
81. Continuous, regular and rhythmic disturbance in a medium resulting periodic vibration of a source causes \_\_\_\_\_ in the medium:  
A. Complex waves  
B. Stationary waves  
C. Electromagnetic waves  
D. **Periodic waves**
82. The thermodynamic process during which volume of the system remains constant is called:  
A. Isothermal  
B. Isobaric  
C. **Isochoric**  
D. Adiabatic
83. The conditions for application of Boyle's law holds good in:  
A. Adiabatic process  
B. **Isothermal process**  
C. Isobaric process  
D. Isochoric process
84. The internal energy of a system during an isothermal process:  
A. Decreases  
B. Increases  
C. Becomes zero  
D. **Remains constant**
85. Electric intensity due to charge distributions are calculated using which following law?  
A. Ohm's law  
B. Faraday's law  
C. **Gauss's law**  
D. Ampere's law
86. The capacitance of capacitor does not depend on:  
A. Area of plates  
B. Medium  
C. Distance between plates  
D. **Thickness of plates**

87. The SI unit of potential difference is:
- Volt**
  - Coulomb
  - Watt
  - eV
88. Electric potential is defined as:
- Work per unit charge**
  - Force per unit charge
  - Power per unit charge
  - Force
89. Ohm meter is the unit of:
- Resistance
  - Resistivity**
  - Conductance
  - conductivity
90. 1eV is equal to:
- $1.602 \times 10^{-19} \text{ J}$**
  - $16.02 \times 10^{-19} \text{ J}$
  - 1620 J
  - $162.0 \times 10^{-19} \text{ J}$
91. The total resistance of wire is inversely proportional to:
- Length
  - Area**
  - Temperature
  - Time
92. Kilowatt hour is a unit of:
- Energy**
  - Energy x time
  - Power
  - (power)(energy)
93. The force exerted on charged particle will be maximum when it enters the magnetic field at:
- $60^\circ$
  - $90^\circ$**
  - $0^\circ$
  - $45^\circ$
94. When a charged particle enters the magnetic field parallel then it will:
- Deflect toward north
  - Deflect toward south
  - Move straight**
  - Move in circular path
95. The SI unit for magnetic induction B is tesla (T). 1 Tesla is equal to:
- $\text{NA}^{-1}\text{m}^{-1}$**
  - $\text{NmA}^{-1}$
  - $\text{N}^{-1}\text{mA}$

- D. NmA
96. Two balls collide each other, it has been observed that the collision is elastic. Which statement is advocates the observation?
- K.E before collision = K.E after collision**
  - Momentum before collision = Momentum after collision
  - K.E before collision  $\neq$  K.E after collision
  - Momentum before collision  $\neq$  Momentum after collision
97. The gradient of velocity time is equal to:
- Distance
  - Force
  - Acceleration**
  - Speed
98. At what pair of angles for a projectile, the ranges are equal?
- $20^\circ$ ,  $60^\circ$
  - $60^\circ$ ,  $30^\circ$**
  - $40^\circ$ ,  $60^\circ$
  - $25^\circ$ ,  $55^\circ$
99. Two car traveling on straight road in opposite direction with speed  $70 \text{ kmh}^{-1}$  and  $60 \text{ kmh}^{-1}$ , their relative velocity will be:
- $10 \text{ kmh}^{-1}$
  - $130 \text{ kmh}^{-1}$**
  - $65 \text{ kmh}^{-1}$
  - $5 \text{ kmh}^{-1}$
100. Two bodies having same mass undergo elastic collision then their velocities after collision will be:
- $v_1' = 0$        $v_2' = v_1$
  - $v_1' = v_2$        $v_2' = 0$
  - $v_1' = v_1$        $v_2' = v_2$
  - $v_1' = v_2$        $v_2' = v_1$**
101. The angle of projection of a projectile for which its maximum height and horizontal range are equal is:
- $86^\circ$
  - $46^\circ$
  - $66^\circ$
  - $76^\circ$**
102. Slope of distance time graph can never be:
- Positive
  - Negative**
  - Constant
  - Zero
103. At highest point in a projectile motion, the velocity will be:
- $V_x = 0$        $V_y = 0$
  - $V_x = 0$        $V_y = \text{constant}$
  - $V_x = \text{constant}$        $V_y = \text{constant}$

- D.  $V_x = \text{constant}$   $V_y = 0$
104. The unit of power in British engineering system is:  
 A. Horse power  
 B. Watt  
 C.  $\text{Js}^{-1}$   
 D. Js
105. Work done will be negative if the angle between force and displacement is:  
 A.  $0^\circ$   
 B.  $45^\circ$   
 C.  $60^\circ$   
 D.  $180^\circ$
106.  $1 \text{ Nms}^{-1} = \underline{\hspace{2cm}}$ :  
 A. 1 Kilo watt hour  
 B. 1 J.s  
 C. 1 watt  
 D.  $1 \text{ J.s}^{-2}$
107. In inter-conversion of energy, the work done against the friction is:  
 A.  $f + h$   
 B.  $f - h$   
 C.  $fh$   
 D.  $f / h$
108. A car of mass 800 Kg accelerates from  $20\text{m}^{-1}$  to  $30\text{ms}^{-1}$ , the increase in K.E is:  
 A. 2 J  
 B. 200 KJ  
 C. 200 J  
 D. 2 KJ
109. In Fleming's right hand rule the middle finger indicates:  
 A. Force  
 B. Magnetic field  
 C. Induced current  
 D. Volt
110. Transformer works on the principle of:  
 A. Lenz's Law  
 B. Faraday's Law  
 C. Mutual Induction  
 D. Ampere's Law
111. The efficiency of transformer is:  
 A. 60 %  
 B. 70 %  
 C. 80 %  
 D. 90 %
112. Lenz's law is also a statement of law of conservation of:  
 A. Charge  
 B. Energy

- C. Momentum  
D. Mass
113. A process in which only one half of alternating current is converted into direct current is called:  
A. Full wave rectification  
B. Amplification  
C. **Half wave rectification**  
D. Magnification
114. Efficiency of full wave rectifier circuit is almost \_\_\_\_\_ than half wave rectifier circuit:  
A. Four times  
B. Same as  
C. Sixteen times  
D. **Double**
115. The conversion of alternating current into direct current is called rectification and circuit is called rectifier. Which component of electronics acts as a rectifier?  
A. **Diode**  
B. Transistor  
C. Transformer  
D. Inductor
116. Red light is used in photographic dark room because of:  
A. More frequency, less wavelength  
B. Less frequency, less wavelength  
C. **Less frequency, more wavelength**  
D. More frequency, more wavelength
117. Which photons carries the most energy?  
A. Blue  
B. **Violet**  
C. Red  
D. Green
118. Which one of the following series lies in the ultraviolet region?  
A. Balmer series  
B. Paschen series  
C. **Lyman series**  
D. Bracket series
119. Which x-ray photon will have longest wavelength?  
A.  **$K_{\alpha}$**   
B.  $K_{\beta}$   
C.  $K_{\gamma}$   
D.  $M_{\alpha}$
120. The half-life of Iodine – 31 is:  
A. 10 days  
B. **8 days**  
C. 45 days  
D. 60 days

121. The half-life of carbon is 5730 years. How much carbon will left after 22920 years?
- A.  $1/32^{\text{nd}}$   
**B.  $1/16^{\text{th}}$**   
 C.  $1/64^{\text{th}}$   
 D.  $1/4^{\text{th}}$
122. Skin burns, loss of hair, drop in the white blood cells etc. are examples of:
- A. **Somatic effect**  
 B. Genetic effect  
 C. Metabolism effect  
 D. Mutation effect

## LOGICAL REASONING

123. Read the given passage and the following statements below. Then choose the option, basing your answer only on the information provided.
- The Early Medieval period (642-1219 CE) witnessed the spread of Islam in a region which is now known as Pakistan. During this period, Sufi missionaries played a pivotal role in converting a majority of the regional Buddhist population to Islam.

Statements:

- I. Islam was spread in Pakistan region during the Early Medieval period.  
 II. Sufi missionaries converted a lot of people to Islam during this time by force.  
 III. It can be said that the Sufis were responsible for Pakistan ultimately become an Islamic country.

- A. **Only I is correct.**  
 B. Only I and II are correct.  
 C. I, II and III all are correct.  
 D. Only I and III are correct.
124. Observe the pattern and select the next term in the sequence:

☺ ● ● □, ● ● □ ☺, ● □ ☺ ●, □ ☺ ● ● :

- A. ● ● ☺ □  
 B. ● ☺ □ ●  
**C. ☺ ● ● □**  
 D. ☺ ● □ ●

125. Read the following and choose the correct answer:
- "X, Y and Z are three whole numbers less than 24 but greater than 11. X is the smallest prime number. Y is the largest number divisible by 3. Z is the smallest number divisible by 11"
- A. X is 13, Y is 24, Z is 11.

- B. **X is 13, Y is 21, Z is 22.**  
 C. X is 11, Y is 21, Z is 11.  
 D. X is 11, Y is 24, Z is 22.
126. I. The government has increased the taxes on all businesses in Pakistan.  
 II. Many small businesses will have to close their operations in Pakistan.]  
 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.
127. Read the following statement, assuming everything in it to be true. Then decide which of the given suggested courses of action logically follow and are pursuing.  
**Statement:**  
 My laptop's battery is low and needs to be charged.  
**Courses of Action:**  
 I. Stop using the laptop to save power.  
 II. Get a new fully charged battery and replace it with my old one.  
 A. I.  
 B. II.  
 C. Both I and II.  
 D. **Neither I nor II.**
128. All hammers are tools. Some tools are useless things. All useless things are trash.  
 Which of the following conclusions are NECESSARILY TRUE given only in information above?  
**Conclusions:**  
 I. Some hammers are trash.  
 II. Some tools are trash.  
 III. All useless things are tools.  
 A. I and III.  
 B. I and II.  
 C. II and III.  
 D. **II**

## CHEMISTRY

129. The molecules of iodine ( $I_2$ ) form the:  
 A. **Molecular crystals**  
 B. Covalent crystals  
 C. Ionic crystals  
 D. Metallic crystals
130. When two ice cubes are pressed over each other, they unite to form one cube due to:  
 A. Dipole dipole attraction  
 B. Covalent attraction  
 C. Van Der Waal's forces



- D. **H - bonding**
131. For the chemical reaction:  

$$\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g}) + \text{Heat}$$
 We can get maximize the yield of  $\text{NH}_3$  :  
 A. By increasing the temperature  
 B. By decreasing the pressure  
 C. By increasing the volume of the reaction vessel  
 D. **By continuous withdrawal of ammonia after intervals**
132. The high pressure of 200 atm in Haber's process is used for:  
 A. **Better yield**  
 B. Lower yield  
 C. Lower rate  
 D. Cost decrease
133. By which of the following factors equilibrium state is attained earlier?  
 A. Temperature  
 B. Pressure  
 C. Concentration  
 D. **Catalyst**
134. Which of the following is not the use of Buffer solution?  
 A. Used for the calibration of pH meters  
 B. Used to preserve biological specimen  
 C. Maintain the pH of the human blood  
 D. **Predict the concentration of a substance**
135. What is incorrect about activated complex?  
 A. It is a high energy specie  
 B. **It is a stable specie**  
 C. It is an unstable specie  
 D. Potential energy is maximum at activated complex stage
136. The unit of rate constants is the same as the rate of reaction in which of the following order of reaction?  
 A. **Zero**  
 B. First  
 C. Second  
 D. Third
137. If a reaction is first order with respect to a reactant then the rate will be \_\_\_\_\_ if the concentration of reactant is doubled:  
 A. **Doubled**  
 B. Halved  
 C. One fourth  
 D. Quadrupled
138. The correct equation for the first law of thermodynamics is:  
 A.  **$\Delta E = q + w$**   
 B.  $\Delta E = w - q$   
 C.  $\Delta E = \Delta q - p\Delta v$

- D.  $\Delta E = \Delta q + p\Delta v$
139. One calorie is equal to:  
 A. 4.18 KJ  
**B. 4.18 J**  
 C. 0.418 KJ mole<sup>-1</sup>  
 D. 0.418 KJ
140. The thermal energy at constan pressure is called:  
 A. **Enthalpy**  
 B. Internal energy  
 C. Heat capacity  
 D. Work done
141. Which statement correctly describes the term Standard Electrode Potential?  
 A. It is the electrode potential determined at room temperature and pressure  
**B. It is the electrode potential determined under standard conditions using StandardHydrogen Electrode as the other electrode**  
 C. It is the electrode potential of an element and its solution compared to a standard value  
 D. It is the potential which is measured when two half cells are connected together
142. Oxidation number of an element in free state is:  
 A. Negative  
 B. Positive  
**C. Zero**  
 D.  $\pm 1$
143. The branch of science which deals with the conversion of electrical energy to chemical energy and vice versa is called:  
 A. **Electrochemistry**  
 B. Thermochemistry  
 C. Stereochemistry  
 D. Biochemistry
144. Which of the following has greatest difference of electronegativity?  
 A. **HF**  
 B. HCl  
 C. HBr  
 D. HI
145. Ionization energy decreases down the group because:  
 A. Shielding remains constant  
 B. Atomic radius remains constant  
 C. Proton number increases  
**D. Atomic radius increases**
146. Carbon atoms in ethane are \_\_\_\_\_ hybridized:  
 A. **Sp<sup>3</sup>**  
 B. Sp<sup>2</sup>  
 C. Sp  
 D. Sp<sup>3</sup>d

147. The type of bonding in Zinc is:  
 A. Ionic  
 B. Covalent  
 C. Dative  
**D. Metallic**
148. Which of the following is semiconductor?  
 A. Al  
**B. Si**  
 C. P  
 D. Mg
149. Which of the following property decreases in Group 2 as we go down the group?  
 A. Shielding  
 B. Atomic radius  
 C. Proton number  
**D. Ionization energy**
150. Which of the following alkali metal can form normal oxides as well as peroxides?  
 A. **Na**  
 B. K  
 C. Li  
 D. Cs
151. The transition element which doesn't show variable valency:  
 A. Cu  
 B. Sc  
**C. Zn**  
 D. Cr
152. The binding energy of transition metals increases upto group:  
 A. II B  
 B. IV B  
 C. III B  
**D. VI B**
153. Homo-cyclic organic compounds are sub divided into two groups namely:  
 A. **Alicyclic and Aromatic**  
 B. Open chain and branched chain  
 C. Aromatic and non-aromatic  
 D. Anti-aromatic
154. The type of isomerism arising due to shifting of proton from one atom to another in the same molecule is:  
 A. Chain isomerism  
 B. Metamerism  
**C. Tautomerism**  
 D. Position isomerism
155. In alkanes, each Carbon has hybridization:  
 A. **Sp<sup>3</sup>**  
 B. Sp

- C.  $sp^2$   
D. dsp
156. For the reaction given below:  

$$N_2 + 3H_2 \rightleftharpoons 2NH_3$$
 How many moles  $N_2$  are required for synthesis of 4 moles of  $NH_3$ ?  
 A. 4 moles of  $N_2$   
**B. 2 moles of  $N_2$**   
 C. 3 moles of  $N_2$   
 D. 4.5 moles
157. Al reacts with  $O_2$  according to the following reaction:  

$$4Al + 3O_2 \rightarrow 2Al_2O_3$$
 27g of Al will react with how much of  $O_2$ ?  
 A. 8 g  
 B. 16 g  
**C. 24 g**  
 D. 32 g
158. One mole of a substance is the amount of that substance that has the same number of particles (atom, ions or molecules) as there are atoms in exactly:  
 A. 1.008 g of hydrogen gas ( $H_2$ )  
 B. 16 g of oxygen gas ( $O_2$ )  
**C. 12 g of carbon-12 isotopes**  
 D. 12 g of magnesium
159. Principle quantum number is represented by the symbol:  
 A. m  
**B. n**  
 C. s  
 D. l
160. Shape of the sub shell is explained by which quantum number:  
 A. Principal quantum number  
**B. Azimuthal quantum number**  
 C. Magnetic quantum number  
 D. Spin quantum number
161. The electronic configuration for degenerated orbitals is explained by:  
 A. Aufbau Principle  
 B.  $n + l$  rule  
**C. Hund's rule**  
 D. Pauli exclusion principle
162. Maximum number of electrons which can be placed in one orbital is:  
 A. 1  
**B. 2**  
 C. 3  
 D. 4
163. Air is a mixture of gases. The molecules of air do not settle down due to:  
 A. Different molar mass

- B. Non polar nature of gases  
C. Presence of dust particles in air  
**D. Elastic collision of gas molecules**
164. Collision shown by gases involve the following:  
A. **No energy change**  
B. No pressure change  
C. Small energy change  
D. Large energy change
165. According to Charles law volume of gas reduces to zero at:  
A.  $-12^{\circ}\text{C}$   
B.  $0^{\circ}\text{C}$   
**C.  $-273.15^{\circ}\text{C}$**   
D.  $-210^{\circ}\text{C}$
166. The strongest hydrogen bond is present in:  
A.  $\text{H}_2\text{S}$   
B. HF  
**C.  $\text{H}_2\text{O}$**   
D.  $\text{NH}_3$
167. Which of the following has highest surface tension?  
A. Benzene  
B. Alcohols  
C. Ether  
**D. Water**
168. Which of the following has highest boiling point?  
A.  $\text{C}_4\text{H}_{10}$   
B.  $\text{C}_6\text{H}_{14}$   
**C.  $\text{C}_{10}\text{H}_{22}$**   
D.  $\text{C}_2\text{H}_6$
169. Ice floats on the surface of water due to:  
A. Larger bond length  
B. Cubic structure of ice  
C. Weak intermolecular forces  
**D. Empty spaces in the structure of ice**
170. Which of the following is not oxidized by any oxidizing agent?  
A. **Benzene**  
B. Toulene  
C. Ethylbenzene  
D. Xylene
171. The correct order of reactivity of hydrocarbons is:  
A. Alkanes > Alkynes > Alkenes  
B. Alkenes > Alkanes > Alkynes  
C. Alkynes > Alkenes > Alkanes  
**D. Alkenes > Alkynes > Alkanes**
172. Reactivity of order of halogen acid is:

- A.  $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$   
 B.  $\text{HBr} > \text{HCl} > \text{HI}$   
 C.  $\text{HCl} > \text{HBr} > \text{HI} > \text{HF}$   
**D.  $\text{HI} > \text{HBr} > \text{HCl} > \text{HF}$**
173. Alkyl halides are also known as Halogen derivatives of:  
 A. **Alkanes**  
 B. Alkenes  
 C. Alkynes  
 D. Alcohols
174. Grignard reagent is formed when alkyl halide reacts in the presence of halogen with:  
 A. Calcium  
 B. Potassium  
 C. Sodium  
**D. Magnesium**
175. Phenols are very reactive towards:  
 A. **Oxidizing agent**  
 B. Reducing agent  
 C. Dehydrating agent  
 D. Hygroscopic agent
176. Both alcohols and phenols contain:  
 A. **– OH group**  
 B. – COOH group  
 C. –  $\text{CH}_2$  group  
 D. – CHO group
177. Select the correct order of relative acidic strength of phenol, alcohol, water, and carboxylic acid:  
 A. Carboxylic acid > water > phenol > alcohol  
**B. Carboxylic acid > phenol > water > alcohol**  
 C. Carboxylic acid > alcohol > phenol > water  
 D. Carboxylic acid > water > alcohol > phenol
178. Carboxylic acid reacts with Alcohol to form:  
 A. **Ester**  
 B. Aldehyde  
 C. Ketone  
 D. Alkyl Halide
179. Catalytic reduction of Aldehyde & Ketone forms:  
 A. **Alcohol**  
 B. Carboxylic acid  
 C. Alkane  
 D. Aldehyde
180. When Aldehyde reacts with 50% NaOH, this reaction is called as:  
 A. 2, 4 – DNPH reaction  
 B. Aldol condensation reaction  
 C. Clemmensen reaction

181. Based on function, thyroxin can be classified as:
- D. **Cannizarros's reaction**
  - A. **Hormonal protein**
  - B. Structural protein
  - C. Transprt protein
  - D. Genetic protein
182. Enzyme is a natural substance that:
- A. **Increases the rate of chemical reaction**
  - B. Decreases the rate of chemical reaction
  - C. Has no effect on the rate of chemical reaction
  - D. Stops the chemical reaction

## ENGLISH

183. The word 'RITUAL' means:
- A. Original
  - B. Religion
  - C. Routine
  - D. **Custom**
184. Choose the correct spelling:
- A. Renaissance
  - B. **Renaissance**
  - C. Renaisance
  - D. Reniassance
185. Choose the correct spelling:
- A. Expident
  - B. Expedent
  - C. **Expedient**
  - D. Expediant
186. Choose correct option from the following:  
Finally the accused was found guilty\_\_\_\_\_the crime.
- A. From
  - B. **Of**
  - C. For
  - D. To
187. Choose the correct spelling:
- A. Defficiency
  - B. Daficiency
  - C. **Deficiency**
  - D. Defeciciency
188. Hundreds of years old palace could not withstand the\_\_\_\_\_of heavy rain:
- A. Aftermath
  - B. **Havoc**
  - C. Annoyance
  - D. Massacre

189. He began to \_\_\_\_\_ the heap of corns very carefully.  
 A. Assess  
**B. Inspect**  
 C. Analyze  
 D. Evaluate
190. How cold the night is! Which kind of sentence is it?  
 A. Interrogative  
 B. Declarative  
**C. Exclamatory**  
 D. Imperative
191. Identify the errors in the sentence to choose the correct option from below:  
 A. Tennis gives you plenty of exercise it develops quickness of eye, and limb. It calls your brain your thinking power into action.  
 B. Tennis gives you plenti off exercise, it develops quickness of eye, limb. It calls your brain, your thinking power intoo action.  
 C. Tennis gives you plenty of exercise, It develops quickness of eye, limb. It calls your brane, your thinking power over action.  
**D. Tennis gives you plenty of exercise; It develops quickness of eye and limb. It callsyour brain, your thinking power into action.**
192. It \_\_\_\_\_ good players who bring good name to a country.  
 A. Was  
 B. Were  
**C. Is**  
 D. Are
193. I don't think I \_\_\_\_\_ be able to go.  
 A. Can  
 B. Should  
**C. Shall**  
 D. must
194. Ethics \_\_\_\_\_ important for a peaceful and loving society.  
 A. Have  
 B. Has  
 C. Are  
**D. Is**
195. Engineers \_\_\_\_\_ working on a new project for the last three days.  
 A. Are  
 B. Has been  
**C. Have been**  
 D. Ought to be
196. The word 'CREDENTIALS' means:  
 A. Trust  
**B. Qualifications**  
 C. Credits  
 D. Beliefs



197. **Identify the errors and choose the correct option:**
- A. **The wind blew, the rain fell, and the lightening flashed.**
  - B. The wind blue the rain fell, and the lightening flashed.
  - C. The wind blew, the rain fell and le lightening flashed.
  - D. The wind blew the rain fell, and the lightening Flashed.
198. **Identify the errors and choose the correct option:**
- A. Time, tide wait for no men.
  - B. **Time and tide waits for no man.**
  - C. The time and the tide wait for no man.
  - D. Time tide wait over know man.
199. **Choose the correct option:**
- Negotiations between the two sides have\_\_\_\_\_.**
- A. Broken off
  - B. **Broken down**
  - C. Broken up
  - D. Broken in
200. **Choose the correct sentence:**
- A. **Your voice was recognized by me at once.**
  - B. All her boats has been lost in the storm.
  - C. A committee of five were appointed.
  - D. The crowd were very big.