

1. Which function cannot be attributed to plasma membrane lipids?

- A
- B
- C
- D

Recognition of cells having non-self-surface markers
 Maintaining cell membrane flexibility
 Control of metabolic reaction across cell membrane
 Binding ligands for intracellular response

2. Follow the route of pepsinogen secreted by zymogen cells:

- A
- B
- C
- D

SER → RER → Golgi complex → Secretory vesicles
 SER → Mitochondria → Golgi complex → Secretory vesicles
 RER → SER → Golgi complex → Secretory vesicles
 Golgi complex → RER → SER → Secretory vesicles

3. Less reactivity of sucrose is due to its:

- A
- B
- C
- D

High solubility in water
 Polar nature
 Unavailability of functional group
 Alpha 1-2 Glycosidic linkage

4. Sucrose is used as a transport carbohydrates instead of glucose because:

- A
- B
- C
- D

It is a disaccharide
 It is non reducing sugar
 It is soluble in water
 It does not change osmotic potential of water

5. Corona Virus is enveloped virus. Hand sanitizers and surface cleaners were recommended to avoid covid epidemic. Which property of corona virus made these products effective?

- A
- B
- C
- D

pH Sensitivity
 Heat sensitivity
 ss RNA genome
 Hypotonicity

Proteins with tertiary structure are helpful in:

- A
- B
- C
- D

Carrying messages from glands to target organs
 Maintaining epithelial lining of skin
 Making the matrix of connective tissue
 Helping muscle contraction

7. Rebonding is process of straightening the curly hairs, which bond is targeted by oxidizing agents used during this process?

- A
- B
- C
- D

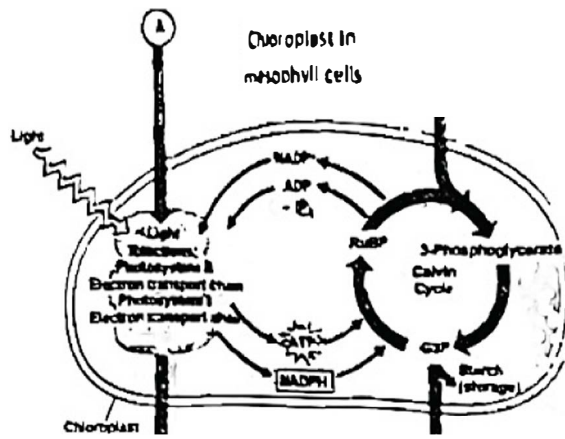
Peptide bond
 Ionic bond
 Disulphide bridge
 Hydrogen bond

8. Ions of heavy metal are harmful for living organisms because of their ability to:

- A
- B
- C
- D

Cleave nucleic acid
 Interfere with fat metabolism
 Break glycosidic bonds
 Destabilize proteins

9. Choose the option showing the correct labeling of the diagram.....



(C)

	A	B	C	D
A	CO ₂	O ₂	H ₂ O	Sugar
B	H ₂ O	Sugar	CO ₂	O ₂
C	H ₂ O	CO ₂	O ₂	Sugar
D	O ₂	CO ₂	H ₂ O	Sugar

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

10. Which mechanism would be compromised in the absence of cytochrome complex during light reaction of photosynthesis?

- A. Reduction of reaction center chlorophyll
- B. Photolysis of water
- C. Oxidation of primary electron receptor
- D. Establishment of proton gradient across thylakoid membrane

11. During glycolysis, isomerization takes place in the formation of:

- A. Dihydroxyacetone phosphate and 2-phosphoglycerate
- B. G₃P and fructose 6 phosphate
- C. PEP and pyruvate
- D. Fructose 6 phosphate and 3 phosphoglycerate

12. Presence of PEP carboxylase in C₄ plants enable them to avoid photorespiration due to:

- A. Presence of enzyme in high concentration
- B. Absence of Rubisco
- C. PEP carboxylase being strictly carboxylase
- D. High yield of enzyme

13. Fats and protein serves as common substrate for which of the following metabolism?

- A. Acetyl CoA
- B. Pyruvate
- C. G₃P
- D. Lactate

14. Which of the following virus has a double standard DNA genome?

- A. Rubella
- B. Influenza
- C. HIV
- D. Small pox

15. An enzyme is capable of acting on a wide range of related substrates. Which of the following is a property of this enzyme?
- Inflexible active site
 - Regulatory enzyme
 - Non-regulatory enzyme
 - Highly specific enzyme
16. All are the characteristics responsible for better survival of encapsulated bacteria except:
- High pathogenicity
 - Withstand dehydration
 - Strict adhesion to internal surfaces
 - Easy recognition by host
17. Probiotics in infants formula milk are the normal bacterial flora to humans. They keep the babies healthy by doing all of the following actions except:
- Produce important vitamins
 - Kill pathogenic bacteria
 - Prevent colonization of pathogens
 - Enhance immunity
18. Activation of all of the following enzymes need a regulatory molecule except:
- Pepsinogen
 - Trypsinogen
 - Erepsin
 - Chymotrypsinogen
19. Weakened papillary muscles of right ventricle would result in constant back flow of blood into:
- Right atrium
 - Left ventricle
 - Right ventricle
 - Left atrium
20. A person with a removed gall bladder experiences difficulty in fat digestion due to:
- Absence of Bile
 - Uncontrolled release of Bile
 - Reduced alkalinity of bile
 - Absence of bile pigments
21. Cell wall protects the plants cell from:
- Dehydration
 - Photoreduction
 - Toxic chemical metabolism
 - Protein loss
22. Which of the following set of characteristics are related to veins?
- | | Valves | Wall thickness | Diameter |
|---|---------|----------------|----------|
| A | Present | Thick | 7-9 m |
| B | Absent | Thick | 40-50 m |
| C | Present | Thinner | 40-50 m |
| D | Absent | Thinner | 40-50 m |
- A
 - B
 - C
 - D

23. Which of the following would not be compromised in the absence of lymphatic system?
- Blood pressure
 - Oxygen carrying capacity of blood
 - Blood composition
 - Defense mechanism
24. The presence of which molecules distinguishes blood from interstitial fluid?
- Large proteins and electrolytes
 - Glucose and RBCs
 - Antibodies and electrolytes
 - RBCs and large proteins
25. Plants growing in saline soil face the problem of dehydration due to:
- Ψ_w of soil $>$ Ψ_w of root
 - Ψ_s of soil $<$ Ψ_s of root
 - Ψ_w of root $>$ Ψ_w of soil
 - Ψ_w of root = Ψ_w of soil
26. During Covid-19 epidemic, the plasma of recovered patients was injected in covid patients. This proved quite effective. Which component of plasma do you think was responsible for this:
- Plasminogen
 - Interferons
 - Antibodies
 - Interleukin - I
27. Choose the one which is example of artificial active immunity:
- Fetus receiving antibodies of mother through placenta
 - Mother receiving antibodies
 - Baby receiving MMR shots
 - Prevention of a disease due to previous infection
28. Which of the following type of T cells are required for the activation of B cells?
- Helper T cells
 - Cytotoxic T cells
 - Suppresser T cells
 - Memory T cells
29. What is the fate of a neurotransmitter after the transmission of nerve impulse across synapse?
- It is taken into post synaptic neuron
 - Reabsorbed into post synaptic membrane
 - Reabsorbed into the synaptic cleft
 - Broken down by enzymes
30. Which immediate change is brought about in the post synaptic membrane on binding with excitatory neurotransmitter?
- Calcium gates open
 - Sodium gates open
 - Sodium gates close
 - Sodium potassium pump ceases to work

31. During the conduction of nerve impulse, hyperpolarization would not occur if:
- Sodium gates didn't close in time
 - Potassium gates were not so lousy
 - Sodium potassium pump stopped working
 - Calcium gates open instantly
32. Which of the following is a characteristics of electrical synapse?
- Presence of neurotransmitters
 - Transmission of nerve impulse
 - Sodium potassium gradient
 - Absence of neurotransmitter
33. Which option given below characterizes refractory period?
- Reversal of charges across neural membrane
 - Change in the type of ions across the membrane
 - Next impulse can be conducted
 - Membrane potential +50mV
34. During complex activity of flight, birds require the coordination of many skeletal muscles. Which part of their brain has to be well developed?
- Amygdala
 - Cerebrum
 - Cerebellum
 - Thalamus
35. Which part of the brain is actively used by mathematician trying to formulate a new equation?
- Hippocampus
 - Cerebrum
 - Amygdala
 - Pons
36. A desert mammal faces severe dehydration in a hot sunny day. Which internal condition would lead to secretion of ADH?
- High osmotic pressure of blood
 - High blood pressure
 - Low osmotic pressure of blood
 - Low solute potential of blood
37. Why and how is cretinism diagnosed by a doctor on seeing a patient with thick and low metabolic rate?
- Cretinism
 - Cushing disease
 - Myxedema
 - Addison's disease
38. Choose the one related to hypoparathyroidism:
- Kidney stones
 - Hypercalcemia
 - Weakness of muscles
 - Tetany
39. Choose the mismatched pair:
- Graffian follicle - progesterone
 - ICSH - interstitial cell
 - Estrogen - inhibits FSH
 - LH - ovulation

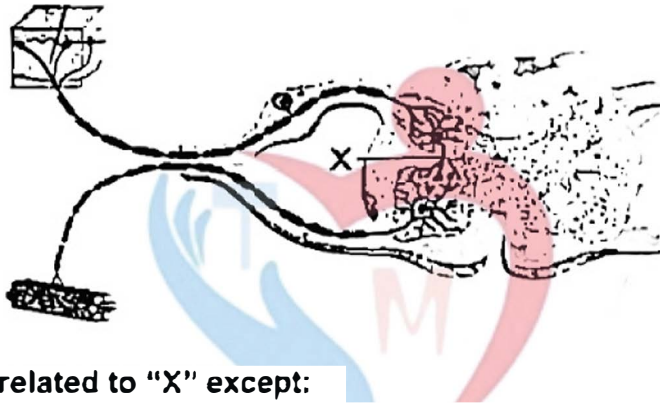
COMMUNITY

Free WhatsApp Us At!

341-7964379

40. Which of the following is an example of negative feedback mechanism?
- Aggregation of platelets during wound healing
 - Labour contraction
 - Milk secretion during suckling
 - Control of body temperature
41. Most of the carbon dioxide in blood is transported as bicarbonate ions. Choose the event not taking place during gaseous exchange at tissue level:
- Formation of HHb
 - Formation of sodium bicarbonate
 - Formation of oxyhemoglobin
 - Chloride shift

42.



All are related to "X" except:

- It passes information to brain
 - It passes information to sensory neurons
 - It synapses with axon of sensory neurons
 - It is present in gray matter
43. Which one is the function of plasma membrane proteins?
- Restrict entry of polar molecules
 - Prevention of freezing during cold weather
 - Movement of ions in and out of the cell
 - Maintenance of membrane flexibility
44. A lizard detaches its tail when attacked by a predator. This is an example of:
- Autophagy
 - Autolysis
 - Phagocytosis
 - Intracellular digestion

45. Choose the option showing the correct set of characteristics for intermediate filaments:

	Diameter	Composition	Function
A	8-10 nm	Vimentin	Mechanical support
B	0.2-25 μm	Vimentin	Cilia flagella
C	8-10 nm	Tubulin	Muscle contraction
D	7 nm	Tubulin	Cytocinesis

- A
- B
- C
- D

46. Nucleo proteins are involved in:
- Cell to cell recognition
 - Passing hereditary information to next generation
 - Ensuring fast speed of nerve impulse
 - Acting as a cell surface marker
47. If reproductive cycle of a female starts on 10th of July, the ovulation is most likely to occur on:
- 1st August
 - 28th of July
 - 24th of July
 - 5th August
48. Which of the following would be produced as a result of reduction division during gametogenesis:
- Oogonium
 - Primary oocyte
 - Primary spermatocyte
 - Secondary oocyte
49. What will be the probability of purple and terminal flower in Pea plant in F₂ generation, if we cross true breeding purple axial flower plant with white terminal flower plant.
- 1/16
 - 3/16
 - 9/16
 - 1/2
50. A carrier female for hemophilia is married to an affected male. What would be the probable percentage for their sons to be affected?
- 100%
 - 50%
 - 25%
 - 0%
51. Which of the following is not related to ABO blood group system?
- It is an example of multiple alleles
 - I^A and I^B are codominant
 - I doesn't code for any antigen
 - It obeys Mendel's laws of inheritance
52. ... is correct for pattern baldness?
- It is sex linked trait
 - Occurs due to hormonal differences between sexes
 - Heterozygous male is normal
 - Heterozygous female is normal
53. You must have often heard about the hamstring injury of players. Which of the following is correct about hamstring muscles?
- It is an extensor muscle
 - Its insertion is on tibia
 - Originate from pelvic girdle and top of femur
 - Originate from ilium and femur

54. Choose the correct, for muscle in relaxed position:
- Exposed binding sites on actin
 - Broad H-zone in sarcomere
 - Formation of cross bridges
 - Ca^{++} released in cytosol
55. Children of a mason do not inherit strong muscles developed by father due to hard labour. This is an example of:
- Survival of the fittest
 - Over production of offspring
 - Not inheriting acquired characters
 - Use and disuse of organs

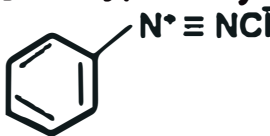
CHEMISTRY

56. $\text{Ca} + \text{S} \longrightarrow \text{CaS}$
If 2.0g of Calcium and 4.0g of Sulphur are available for reaction. Then amount of product formed:
- 4.6
 - 1.6
 - 2.6
 - 3.6
57. Select the greatest number of particles in the following:
- 2g of Sodium (atomic mass of sodium = 23)
 - 2g of Hydrogen gas (atomic mass of H = 1)
 - 2g of Nitrogen gas (atomic mass of N = 14)
 - 2g of Carbon dioxide gas (atomic mass of C = 12, O = 16)
58. The value of "l" for 4p orbital is:
- 0
 - 1
 - 2
 - 3
59. The element having the electronic configuration of noble gas notation (Kr) $5s^2 4d^6$ is:
- Sr_{38}^{87}
 - Ru_{44}^{101}
 - Pd_{46}^{106}
 - Zr_{40}^{91}
60. Choose the correct quantum numbers for an electron in a 3d orbital:
- $n = 3, l = 2, m = 0, s = +1/2$
 - $n = 3, l = 3, m = 0, s = -1/2$
 - $n = 4, l = 3, m = 4, s = +1/2$
 - $n = 4, l = 2, m = 4, s = -1/2$
61. A gas has a volume of 10dm^3 at 10°C . At what temperature the volume of the gas is reduced to half?
- 283k
 - 566k
 - 142k
 - 373k

62. The relationship between the absolute temperature and the velocities of the gas molecules is given by:
- $C_{rms} = \sqrt{3RT/M}$
 - $PV = nRT$
 - $V = \sqrt{2Ek/m}$
 - $PV = 1/3mNc^2$
63. The maximum polarizability is exhibited in:
- C_6H_{14}
 - C_3H_6
 - C_5H_{12}
 - C_2H_6
64. Which of the following compound have any characteristic heat of fusion except?
- NaCl
 - Aluminium oxide
 - Iron oxide
 - Silicates
65. If the external pressure is reduced to half, the boiling point of ethanol will be:
- Greater than 78°C
 - Less than 78°C
 - Equal to 78°C
 - Reduced to half
66. Iodine is a poor conductor of electricity because of:
- Face centered cubic structure
 - Body centered cubic structure
 - Tetragonal structure
 - Hexagonal structure
67. Predict the shape of CsCl having radius ratio of 0.93.
- Tetrahedral
 - Octahedral
 - Body centered cubic
 - Hexagonal
68. The solubility of PbS at 25°C is 4.0×10^{-28} . Then ionic concentration will be:
- 4×10^{-14}
 - 2×10^{-14}
 - 1×10^{-14}
 - 3.0×10^{-10}
69. What conditions should be applied to minimize the leftover reactants in Ammonia synthesis?
- 200atm, 500°C
 - 400atm, 200°C
 - 100atm, 400°C
 - 200atm, 400°C
70. Select the buffer solution having highest pH:
- 0.1M CH_3COOH , 0.01M CH_3COO^-
 - 0.1M CH_3COOH , 0.05M CH_3COO^-
 - 0.1M CH_3COOH , 0.10M CH_3COO^-
 - 0.1M CH_3COOH , 0.15M CH_3COO^-



71. The formation of hydrogen gas can be increased by reacting which Zn sample with 1M HCl solution?
- A. 1g Zn Rod
 - B. 1g Zn Pellets
 - C. 1g Zn Ribbon
 - D. 1g Zn Powder
72. $6\text{CO}_2 + 6\text{H}_2\text{O} \xrightarrow{\text{sunlight}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
Predict the order of reaction:
- A. 2nd
 - B. 1st
 - C. Zero
 - D. 3rd
73. Which of the following mechanism is consistent with the rate law $\text{Rate} = k[\text{NO}]^2[\text{H}_2]$?
- A. $2\text{NO} + \text{H}_2 \rightarrow \text{N}_2 + \text{H}_2\text{O}_2$ (slow)
 $\text{H}_2\text{O}_2 + \text{H}_2 \rightarrow 2\text{H}_2\text{O}$ (fast)
 - B. $\text{NO} + \text{H}_2\text{O} \rightarrow \text{N}_2 + \text{H}_2\text{O}_2$ (slow)
 $\text{H}_2\text{O}_2 + \text{H}_2 \rightarrow 2\text{H}_2\text{O}$ (fast)
 - C. $2\text{NO} + 2\text{H}_2 \rightarrow \text{N}_2\text{O} + \text{H}_2$ (slow)
 $\text{H}_2\text{O} + \text{H}_2 \rightarrow \text{H}_2\text{O}_2$ (fast)
 - D. $\text{NO} + \text{NO} \rightarrow \text{N}_2 + \text{O}_2$ (slow)
 $\text{O}_2 + \text{H}_2 \rightarrow \text{H}_2\text{O}$ (fast)
74. ΔH° for the sublimation of one mole of iodine from the following equations will be:
- $\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightarrow 2\text{HI}(\text{g}) \quad \Delta H^\circ = 51.8 \text{ kJ/mol}$
 $\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightarrow 2\text{HI}(\text{g}) \quad \Delta H^\circ = -10.5 \text{ kJ/mol}$
- A. 41.3 kJ/mol
 - B. 62.3 kJ/mol
 - C. 53.5 kJ/mol
 - D. 36.5 kJ/mol
75. Identify standard enthalpy of a reaction for the following reaction:
- A. $\text{H}_2(\text{g}) + 1/2\text{O}_2(\text{g}) \rightarrow \text{H}_2\text{O}(\text{l})$
 - B. $\text{CO}(\text{g}) + 1/2\text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g})$
 - C. $2\text{Al}(\text{s}) + 3\text{Fe}_2\text{O}_3(\text{s}) \rightarrow \text{Al}_2\text{O}_3(\text{s}) + 2\text{Fe}(\text{s})$
 - D. $\text{S}(\text{g}) + 3/2\text{O}_2(\text{g}) \rightarrow \text{SO}_3(\text{g})$
76. Expansion takes place when a gas is evolved during a chemical reaction between carbonyl chloride and dilute HCl. Predict the energy change and work done:
- A. w is positive, q is negative
 - B. w is negative, q is positive
 - C. q is positive, no work done
 - D. w is positive, q is positive
77. Zn rod acts as cathode when coupled with magnesium electrode. This is because the reduction potential of:
- A. $\text{Zn} > \text{Mg}$
 - B. $\text{Zn} < \text{Mg}$
 - C. $\text{Zn} = \text{Mg}$
 - D. $\text{Zn} = \text{O}$

78. Placing a rod of Iron metal in a solution of CuSO_4 :
- Cu will be deposited
 - Fe is precipitated out
 - Cu and Fe both dissolve
 - No reaction takes place
79. In CH_3Cl , bond length of C-Cl is 176.7 pm and covalent radius of Cl atom is 99.4 pm, the covalent radius of carbon atom is:
- 66.3 pm
 - 276.1 pm
 - 175.4 pm
 - 77.3 pm
80. Correct order of decreasing electron affinities of group VII is:
- $\text{F} > \text{Cl} > \text{Br} > \text{I}$
 - $\text{Cl} > \text{F} > \text{Br} > \text{I}$
 - $\text{F} < \text{Cl} < \text{Br} < \text{I}$
 - $\text{Cl} < \text{F} < \text{Br} < \text{I}$
81. Predict the highest bond energy of the following single bond:
- C-H
 - C-N
 - C-O
 - C-C
82. Identify the type of hybridization of nitrogen in the following molecule:
- 
- $\text{N}^+ \equiv \text{NCl}$
- sp
 - sp^2
 - sp^3
 - dsp^2
83. Compound X + $\text{Na}_2\text{CO}_3 \longrightarrow$ compound Y + CO_2 + H_2O
The p and γ is:
- $\text{CH}_2 - \text{CH} - \text{CH}_2 - \text{CH}_3$
 - $\text{CH}_3\text{CH}_2\text{CHO}$
 - $\text{CH}_3\text{C}(\text{OCH}_3)$
 - $\text{CH}_3\text{C}(\text{OH})_2\text{COOH}$
84. Compound A + I_2 + $\text{Na}_2\text{CO}_3 \longrightarrow$ compound B + RCOONa + NaI + H_2O
Identify compound B:
- Acetone
 - Acetic acid
 - Acetamide
 - Acetic anhydride
85. Select the carboxylic acid with highest melting point:
- Ethanoic acid
 - Propanoic acid
 - Butanoic acid
 - Pentanoic acid

86. Identify the following compounds having shortest bond length:
- Methyl amine
 - Formamide
 - Formic acid
 - Ethanol
87. Identify the alkene which gives only one type of aldehyde upon ozonolysis:
- 1 – pentene
 - 2 – methyl propene
 - 2 – butene
 - 2,3 – dimethyl – 2 – butene
88. Identify the correct increasing order of reactivity of carbonyl compound towards nucleophilic addition:
- $\text{HCHO} < \text{CH}_3\text{CHO} < \text{CH}_3\text{COCH}_3 < \text{CH}_3\text{CH}_2\text{CHO}$
 - $\text{CH}_3\text{CHO} < \text{CH}_3\text{COCH}_3 < \text{CH}_3\text{CH}_2\text{CHO} < \text{HCHO}$
 - $\text{CH}_3\text{CH}_2\text{CHO} < \text{CH}_3\text{COCH}_3 < \text{HCHO} < \text{CH}_3\text{CHO}$
 - $\text{CH}_3\text{CH}_2\text{CHO} < \text{CH}_3\text{COCH}_3 < \text{CH}_3\text{CHO} < \text{HCHO}$
89. Bakelite is formed upon polymerization of:
- $$\text{C}_6\text{H}_5\text{OH} + \text{HCHO} \xrightarrow{\text{dil base}}$$
 - $$\text{C}_6\text{H}_5\text{OH} + \text{NaOH} \xrightarrow{\text{H}_2\text{O}}$$
 - $$\text{C}_6\text{H}_5\text{OH} + \text{H}_2\text{SO}_4 \xrightarrow{\text{H}_2\text{O}}$$
 - $$\text{C}_6\text{H}_5\text{OH} + \text{CH}_3\text{COCl} \xrightarrow{\text{H}_2\text{SO}_4}$$
90. The increasing order of reactivity of alcohols towards nucleophile is:
- 2-methyl-2-pentanol < 3-methyl-2-pentanol < 2-methyl-1-pentanol
 - 2-methyl-1-pentanol > 3-methyl-2-pentanol > 2-methyl-2-pentanol
 - 2-methyl-1-pentanol > 2-methyl-2-pentanol > 3-methyl-2-pentanol
 - 2-methyl-2-pentanol > 3-methyl-2-pentanol > 2-methyl-1-pentanol
91. The most reactive alcohol towards Lucas reagent is:
- 2 – butanol
 - 2 – methyl – 1 – butanol
 - 2 – methyl – 2 – butanol
 - 2,2 – dimethyl – 1 – butanol
92. The most readily sulphonated compound is:
- Benzene
 - Chlorobenzene
 - Nitrobenzene
 - Toluene

93. Select the alkane showing geometrical isomerism:
- 3-methyl-1-butene
 - Methyl cyclopentane
 - 2,3-dimethyl-2-butene
 - 3-methyl-2-pentene
94. Trend in ionization energy of group I elements in increasing order will be:
- Na < Mg < Al < Si
 - Mg < Na < Al < Si
 - Si < Al < Mg < Na
 - Al < Si < Na < Mg
95. When a metal carbonate is heated at 100°C, which of the following compound will readily decompose?
- BaCO₃
 - MgCO₃
 - BeCO₃
 - SrCO₃

PHYSICS

96. At what angle of applied force, work done will be 50%?
- 30°
 - 60°
 - 90°
 - 45°
97. What is the power of electric motor when it performs work of 64×10^6 J in 8 seconds?
- 8 Kilowatts
 - 7 Kilowatts
 - 8 Megawatts
 - 7 Megawatts
98. The relation between K.E and momentum P is given by:
- K.E = $\frac{1}{2} P/M$
 - K.E = $\frac{1}{2} P/M^2$
 - K.E = $\frac{1}{2} P^2/M^2$
 - K.E = $\frac{1}{2} P^2/M$
99. When dolphin leaves the water it has lots of kinetic energy. At its highest point its energy is:
- Kinetic energy
 - Potential energy
 - Elastic potential energy
 - Neither kinetic energy nor potential energy
100. The absolute potential energy is given as $U_g = \frac{-GmMe}{R}$. The negative sign indicates that Earth's gravitational field for mass "m" is:
- Repulsive
 - Less attractive
 - Attractive
 - More repulsive less attractive

101. The velocity of an object moving in a circle is:
- Constant
 - Variable
 - Zero
 - Negative
102. If you stop your car quickly by wearing seat belts, chance of injury is greatly reduced because seat belt applied:
- Extra force
 - Perpendicular force
 - Opposite force
 - Zero force
103. A ball with momentum 8 kg m/s hits a wall and bounces straight back without losing K.E. The change in momentum of the ball is:
- 4 Ns
 - 16 Ns
 - 16 Ns
 - 8 Ns
104. In projectile motion for which angle maximum height is half of its range?
- 73°
 - 65°
 - 63°
 - 68°

Sara goes around a circular track that has diameter of 20m. If she runs around the entire track for a distance of 180m, What is her angular displacement?

- 16 radians
 - 18 radians
 - 50 radians
 - 8 radians
106. Angle swept by minute hand in one minute is:
- 6°
 - 36°
 - 8°
 - 20°

107. To find the direction of an angular displacement:

- Grasp the thumb of right hand in the direction of circular motion
- Grasp the axis of rotation in left hand
- Put the index finger in the direction of circular motion
- Put the thumb of left hand in the direction of circular motion

108. A particle moves in a circle of radius 10m with a constant linear speed of 20 m/s. Find the angular velocity:

- 2 rad s^{-1}
 - 200 rad s^{-1}
 - 20 rad s^{-1}
 - 10 rad s^{-1}
109. For anti-clock wise rotation the angular displacement is:
- Negative
 - Positive
 - Null
 - Zero

110. Speed of sound in solid is greater than speed of sound in air because ratio:
- $(\sqrt{E/\rho})_{\text{solid}} < (\sqrt{E/\rho})_{\text{air}}$
 - $(\sqrt{E/\rho})_{\text{solid}} > (\sqrt{E/\rho})_{\text{air}}$
 - $(\sqrt{E/\rho})_{\text{solid}} = (\sqrt{E/\rho})_{\text{air}}$
 - $(\sqrt{E/\rho})_{\text{solid}} \leq (\sqrt{E/\rho})_{\text{air}}$
111. A body of mass 10 kg is connected to a spring and it is oscillating on a horizontal frictionless surface. If the maximum displacement of body is 20cm and spring constant is 20Nm^{-1} . What is the acceleration of the body?
- 2.2 ms^{-2}
 - 4 ms^{-2}
 - 2 ms^{-2}
 - 0.4 ms^{-2}
112. A normal person can hear sound waves ranging in frequency from 20Hz to 20KHz. The maximum wavelength is:
- 17m
 - 17mm
 - 17cm
 - 17km
113. NaCl dissolves quickly in water due to:
- Low ϵ_r
 - High ϵ_r
 - $\epsilon_r = 0$
 - $\epsilon_r = \infty$
114. A capacitor can be fully charge because time required to charge is:.
- 1 time constant
 - 2 time constant
 - 4 time constant
 - Infinity
115. The electric field at distance of 10cm from a $2\mu\text{C}$ point charge is:
- 1.8 C
 - 180 C
 - 18 C
 - 1800 C

116.  To Join Us For Free; WhatsApp Us At!

- At midpoint P:
- $V = 0, E \neq 0$
 - $V = 0, E = 0$
 - $V \neq 0, E \neq 0$
 - $V \neq 0, E = 0$

117. A process in which all the heat energy is used for increasing internal energy of the system is known as:
- Isobaric
 - Isochoric
 - Isothermal
 - Adiabatic

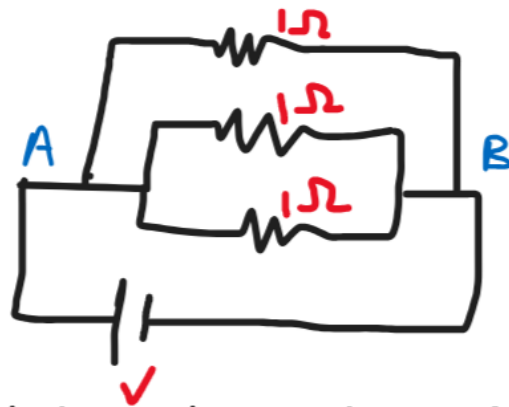
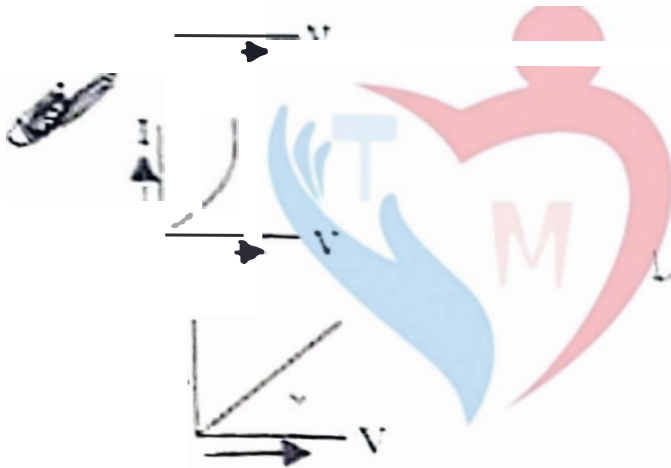
0543

The phase shift between voltage and current when AC flows through capacitor is:

A particle have a charge of $1.6 \times 10^{-19} \text{ C}$ and is through potential diff of 5V. The energy required by it is:

A. $5 \times 10^{-19} \text{ J}$
 B. $8 \times 10^{-19} \text{ J}$
 C. 8 J
 D. 5 J

120. Which graph shows a non-ohmic material whose resistance decreases



The equivalent resistance between A and B is

- A. $3/2 \Omega$
 B. $1/3 \Omega$
 C. 3Ω
 D. $2/3 \Omega$

121. For a set of 10 W each, two bulbs of 100W, each works for 2 hours daily. The energy consumed in 30 days will be:

- A. 4 Kwh
 B. 1 Kwh
 C. 2 Kwh
 D. 10 Kwh

The side of the square loop placed in a magnetic field of 10 T if it carries 1 A of current, the force acting on the wire will be:

- A. 50 N
- B. 25 N
- C. 10 N
- D. 5 N

ILB
 $1 \times 1 \times 10$

124. The resistivity of a material depends on temperature coefficient of resistance.

- A. Conductor
- B. Semi-conductor
- C. Alloy

125. If the value of electric field intensity between the plates increases two times, then energy stored in a capacitor becomes:

- A. Double
- B. One Forth
- C. Quadruple

126. The horizontal range of projectile will be maximum when?

- A. $\sin \theta = 1$
- B. $\sin \theta = 0$
- C. $\sin \theta = 0$
- D. $\sin \theta = 0$



$R = \frac{u^2 \sin 2\theta}{g}$
Max range at $2\theta = 90^\circ$
 $\theta = 45^\circ$

127. How many degrees in 2-15 radians?

- A. 80°
- B. 50°
- C. 72°
- D. 20°

$\frac{\pi}{180}$

$15 \times \frac{\pi}{180}$

$15 \times \frac{\pi}{180}$

$15 \times \frac{\pi}{180}$

$15 \times \frac{180}{\pi}$

$2\pi \times 360^\circ$

$15 \times \frac{180}{\pi}$

$15 \times \frac{180}{\pi} \times \frac{\pi}{180} = 15$

128. A transformer used a 220V line delivers 22A at 1800V. What current is drawn from the line (assume 100% efficiency)?

- A. 22A
- B. 180A
- C. 200A
- D. 50A

$V_1 I_1 = V_2 I_2$

$220 \times I_1 = 1800 \times 22$

$\frac{V_1}{V_2} = \frac{I_2}{I_1}$

$\frac{220}{1800} = \frac{22}{I_1}$

CAT C

129. For rectification transformer used is:

- A. With low input voltage
- B. With low input resistance
- C. Step up
- D. Step down

10341-7964379

130. $\vec{A} = x\hat{i} + y\hat{j} + z\hat{k}$

- A. $x^2 + y^2 + z^2$
- B. $x^2 + y^2 + z^2$
- C. $x^2 + y^2 + z^2$
- D. $x^2 + y^2 + z^2$

131. One rem is equal to:

- A. 0.01 Gy / RBC
- B. 0.01 Gy × RBC
- C. 0.01 RBC
- D. 0.01 Gy

1 rem = 0.01 Sv

132. 1 rad is equal to:

- A. 0.01 J/Kg
- B. 0.01 Kg/J
- C. 0.01 J
- D. 0.01 Kg

133. 60 kg man absorbs lethal whole body equivalent dose of 200 rem with RBC factor of 10, energy absorbed is:

- A. 9J
- B. 8J
- C. 10J
- D. 12J

134. Somatic effect causes:

- A. Genes deformation
- B. Chromosomes deformation
- C. Skin burns
- D. Eye burns

135. Each person experiences the background radiation dose in one year:

- A. 1mSv
- B. 1mGy
- C. 1Gy
- D. 1Sv

ENGLISH

136. The plane ought to be taking off in a minute. The underlined is:

- A. Linking verb
- B. Modal auxiliary
- C. Helping verb
- D. Finite verb

137. When heavy rain, the sky grew dark. The underlined verb is:

- A. Non-Finite
- B. Transitive
- C. Di-transitive
- D. Linking

138. His courage honoured him honour. The underlined verb is:

- A. Intransitive
- B. Di-transitive
- C. Complex transitive
- D. Linking

139. The teacher assigned the students an assignment to be completed during vacation. The underlined verb is:

- A. Mono-transitive
- B. Di-transitive
- C. Complex transitive
- D. Intransitive

140. Of two evils choose the less. The sentence carries an adjective that is
A. Comparative
B. Positive
C. Numeral
D. Distributive

141. Are there any mango trees in this area? The underlined word is:
A. Adjective of quantity
B. Adjective of number
C. Indefinite pronoun
D. Reciprocal pronoun

142. This is the very thing we want. The underlined word is a/an:
A. Emphatic pronoun
B. Emphasizing adjective
C. Reflexive pronoun
D. Exclamatory adjective

143. Don't be in such a hurry. The sentence contains an adjective of:
A. Number
B. Distributive
C. Quantity
D. Demonstrative

144. Fill in the blank with appropriate verb indicating Present Perfect Continuous sense. He _____ home from work regularly since he joined his office.
A. Had walked
B. Had been walking
C. Walked
D. Has been walking

145. All desire wealth and some acquire it. The sentence exemplifies _____ sense.
A. Present continuous
B. Past indefinite
C. Present perfect
D. Simple future

146. Choose the incorrect sentence structure:
A. Justice is worth money, follows it
B. In him, was centered their love and ambition
C. The wages of sin is death
D. Fire and water do not agree

147. If I were a doctor, I would serve humanity. The sentence is an example of _____ conditional.
A. Zero
B. Type I
C. Type II
D. Type III

148. Choose the sentence which is correctly structured:
A. If we had found him earlier, we could have saved his life.
B. If we had found him earlier, we have saved his life.
C. If we had found him earlier, we had saved his life.
D. If we had found him earlier, we could save his life.