

SECTION – 1 (CHEMISTRY)

01. Which of the following metal is used in storage battery?
 (A) Iron (B) Lead (C) Tin (D) Zinc
02. Which of the following is a sulphide ore?
 (A) Haematite (B) Bauxite (C) Cinnabar (D) Magnetite
03. The hydride of carbon is CH_4 . Which one of the following element form similar hydride?
 (A) Si (B) Al (C) Li (D) Mg
04. The order of reactivity of Zn, Fe, Cu and Al is
 (A) $\text{Zn} > \text{Cu} > \text{Al} > \text{Fe}$ (B) $\text{Zn} > \text{Al} > \text{Cu} > \text{Fe}$
 (C) $\text{Al} > \text{Zn} > \text{Fe} > \text{Cu}$ (D) $\text{Zn} > \text{Al} > \text{Fe} > \text{Cu}$.
05. The functional group present in vinegar is

$$\begin{array}{c} \text{O} \\ \parallel \\ \square \end{array}$$
 (A) $-\text{CHO}$ (B) $-\text{C}-\text{H}$ (C) $-\text{COOH}$ (D) $-\text{OH}$
06. Which is having maximum capacity to form cation?
 (A) Li (B) Sr (C) Ca (D) Mg
07. The non-metal which is a liquid at room temperature
 (A) Oxygen (B) Fluorine (C) Sulphur (D) Bromine
08. When copper oxide (CuO) dissolves in HCl to give blue-green solution. The blue-green solution is
 (A) $\text{Cu}(\text{OH})_2$ (B) CuCl_2 (C) Cu_2Cl_2 (D) CuCO_3
09. Which oxide is neutral?
 (A) NO_2 (B) MgO (C) H_2O (D) None of these
10. Which of the following acids is present in sour milk?
 (A) glycolic acid (B) lactic acid (C) citric acid (D) tartaric acid
11. The maximum number of electron transfer occur in the formation of
 (A) LiF (B) NaCl (C) CaO (D) KCl
12. The reaction involved in thermite process is
 (A) $\text{Fe}_2\text{O}_{3(s)} + 2\text{Al}_{(s)} \rightarrow 2\text{Fe}_{(l)} + \text{Al}_2\text{O}_{3(s)}$ (B) $3\text{MnO}_{2(s)} + 4\text{Al}_{(s)} \rightarrow 3\text{Mn}_{(l)} + 2\text{Al}_2\text{O}_{3(s)}$
 (C) $\text{Fe}_2\text{O}_{3(s)} + 6\text{Na}_{(s)} \rightarrow 2\text{Fe}_{(l)} + 3\text{Na}_2\text{O}_{(s)}$ (D) $\text{Fe}_2\text{O}_{3(s)} + 3\text{Ca}_{(s)} \rightarrow 2\text{Fe}_{(l)} + 3\text{CaO}_{(s)}$
13. Bleaching powder is prepared by the reaction between
 (A) ammonium chloride and sodium hydroxide (B) calcium hydroxide and iodine
 (C) slaked lime and chlorine (D) milk of magnesia and bromine

SPACE FOR ROUGH WORK

14. Fat + NaOH \longrightarrow + Glycerol. One of the product formed in this reaction is
(A) soap (B) vinegar (C) paper (D) ester
15. The correct chemical constituent of aqua regia which dissolves Au and Pt?
(A) 3 parts of Conc. H_2SO_4 and 1 part of Conc. HCl
(B) 3 parts of Conc. HCl and 1 part of Conc. H_2SO_4
(C) 3 parts of Conc. HCl and 1 part of Conc. HNO_3
(D) 2 parts of Conc. HNO_3 and 1 part of Conc. HCl
16. Lead nitrate on thermal decomposition gives lead oxide, _____ and _____.
(A) NO_2 , H_2O (B) NO and NO_2 (C) NO_2 , O_2 (D) None of these
17. Which metal is the best conductor of electricity ?
(A) Silver (B) Gold (C) Sodium (D) Copper
18. $\text{PbO} + \text{C} \xrightarrow{\Delta} \text{Pb} + \text{CO}$
In this reaction ;
(A) carbon is reduced (B) Carbon monoxide is oxidized
(C) metal oxide is reduced (D) metal oxide is oxidized
19. The IUPAC name of $(\text{CH}_3)_3\text{C}-\text{CH}=\text{CH}_2$ is
(A) Hex - 1 ene (B) 3,3- dimethyl but - 1- ene
(C) 2, 2 - dimethyl 3 -butene (D) Pent - 1 - ene
20. When ethanoic acid reacts with ethanol in the presence of an acid gives ?
(A) aldehyde (B) ester (C) ketone (D) alkene
21. When ethanol was heated with alkaline KMnO_4 gives
(A) ethene (B) ethanoic acid (C) ethanal (D) ethyne
22. The formula of Glauber's salt is.
(A) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ (B) $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ (C) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ (D) $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$
23. Solution P has a pH of 13. Solution Q has a pH of 6 and solution R has pH of 2. Which solution will liberate ammonia from ammonium sulphate on heating ?
(A) P (B) Q (C) R (D) None of these
24. Balance the given equation and find the ratio of x and y.
 $\text{C}_5\text{H}_{10} + x\text{O}_2 \rightarrow y\text{CO}_2 + \text{H}_2\text{O}$
(A) 3 : 2 (B) 2 : 3 (C) 3 : 4 (D) 4 : 3
25. Which of the following is a metalloid?
(A) Si (B) S (C) Cl (D) Bi

SPACE FOR ROUGH WORK

SECTION – 2 (BIOLOGY)

26. Glycolysis occurs in _____.
 (A) Cytoplasm and Chloroplast (B) Cytoplasm
 (C) Cytoplasm and Matrix (D) Chloroplast
27. Seed is the post fertilization modification of _____.
 (A) ovary (B) embryo (C) ovule (D) nucellus
28. Which among the following show vascular bundles?
 (A) Gymnosperms (B) Angiosperms (C) Pteridophytes (D) All the above
29. A cell placed in a strong salt solution will shrink because
 (A) mineral salts will break the cell wall (B) salt water will enter the cell
 (C) water comes out due to exosmosis (D) cytoplasm will decompose
30. Select the growth inhibiting hormone.
 (A) auxin (B) cytokinin (C) GA (D) ABA
31. The number of obligate categories which are always used in a taxonomic hierarchy are
 (A) 5 (B) 7 (C) 3 (D) 8
32. In bacteria the plasmid is
 (A) bacterial DNA (B) extra-chromosomal DNA
 (C) non-functional DNA (D) repetitive gene
33. Which of the following statements are CORRECT?
 (i) Pyruvate can be converted into ethanol and carbon dioxide by yeast.
 (ii) Fermentation takes place in aerobic bacteria.
 (iii) Fermentation takes place in mitochondria.
 (iv) Fermentation is a form of anaerobic respiration.
 (A) (i) and (iii) (B) (ii) and (iv) (C) (i) and (iv) (D) (ii) and (iii)
34. If the haploid number is 14, how many chromosomes will there be in microspore mother cell of a flowering plant?
 (A) 42 (B) 28 (C) 14 (D) 7
35. Rough endoplasmic reticulum is involved in
 (A) Lipid synthesis (B) Starch synthesis
 (C) Protein synthesis (D) Carbohydrate synthesis
36. Synthesis of mRNA is called
 (A) Replication (B) Translation (C) Transcription (D) Translocation
37. Movement of water from higher water potential through a semi-permeable membrane is best depicted as
 (A) osmosis (B) diffusion (C) plasmolysis (D) imbibitions

38. Identify the stage of cell division given in the following diagram



- (A) Diplotene (B) Pachytene (C) Zygotene (D) Diakinesis

39. The hydrostatic pressure which develops inside the plant cell due to endosmosis is called

- (A) T.P (B) S.P (C) D.P.D (D) D.P

40. In case of incomplete dominance, F_2 generation has _____.

- (A) genotypic ratio equal to phenotypic ratio (B) genotypic ratio as 3 : 1
(C) phenotypic ratio as 3 : 1 (D) genotypic ratio and phenotypic ratio as 2 : 1

41. Endomembrane system is a group of

- (A) Organelles identical in structure and function
(B) Membrane bound organelles with non-coordinated functions
(C) Smaller organelles within larger organelle
(D) Membrane bound organelles whose functions are coordinated

42. Queen Victoria of England was

- (A) Haemophilic carrier (B) Colour blind
(C) AIDS patient (D) Cancer patient

43. During rainy season, wooden doors and windows swell due to

- (A) Imbibition of water (B) Exosmosis
(C) Plasmolysis (D) Both (A) and (B)

44. Match the following

	Column I		Column II
A	Anemophily	i	Flowers with bright colours, nectar, usually scentless
B	Hydrophily	ii	Flowers with bright colours, nectar and fragrance
C	Entomophily	iii	Colourless flowers, unwettable floral parts
D	Ornithophily	iv	Light, small pollen grains produced in large numbers

- (A) A-iv, B-iii, C-ii, D-i (B) A-i, B-ii, C-iii, D-iv
(C) A-ii, B-iii, C-iv, D-i (D) A-iv, B-i, C-iii, D-ii

45. Unique feature of angiosperm is

- (A) Seed formation (B) Double fertilization (C) Vascular system (D) Terrestrial habitat

46. The solution in which a cell will gain water by osmosis is termed as

- (A) isotonic solution (B) hypertonic solution (C) hypotonic solution (D) both (A) and (C)

47. Bryophyte act as a connecting link between

- (A) Thallophyta and Pteridophyta (B) Algae and Fungi
(C) Pteridophyta and Gymnosperm (D) Algae and Angiosperm

48. Ribosomes are the centre for _____.
(A) respiration (B) photosynthesis (C) protein synthesis (D) fat synthesis
49. The final stable community in ecological succession is _____.
(A) climax (B) sere (C) pioneers (D) carnivores
50. In an ecosystem, there is flow of energy at different trophic levels. This is as follows -
(A) Primary consumers-Secondary consumers –Decomposers-Producers
(B) Producers- Primary consumers- Secondary consumers- Tertiary consumers- Decomposers
(C) Producers- Decomposers- Primary consumers- Tertiary consumers- Secondary consumers
(D) Producers- Primary consumers- Tertiary consumers- Secondary consumers- Decomposers
51. Which of these is the CORRECT set of examples of the same type of tissue?
(A) Bone, Blood, Adipose (B) Bone, Cartilage, Muscle
(C) Muscle, Blood, Nerves (D) Glandular, Blood, Lymph
52. Which of these is the most primitive animal?
(A) Hydra (B) Spongilla (C) Rabbit (D) Cockroach
53. Which of these is a simplest sugar?
(A) Sucrose (B) Maltose (C) Lactose (D) Glucose
54. Find the INCORRECT match
(A) Vitamin B - Rickets
(B) Vitamin A - Night blindness
(C) Vitamin C - Scurvy
(D) Protein - Kwashiorkor
55. Which of these is a tearing teeth?
(A) Incisor (B) Canines (C) Premolar (D) Molar
56. Which of these is a causative organism of tuberculosis?
(A) *Mycobacterium* (B) *Corynebacterium* (C) *Neisseria* (D) *Streptococcus*
57. Which hormone is synthesized by kidney?
(A) Insulin (B) Growth hormone (C) Testosterone (D) Erythropoietin
58. Which among this is a phagocytic cell?
(A) RBC (B) Lymphocytes (C) Neutrophils (D) Platelets
59. The right and left cerebral hemisphere are coordinated with each other through
(A) Corpus callosum (B) Corpus striatum (C) Cerebellum (D) Medulla oblongata
60. Thermoregulation is the property of
(A) Medulla oblongata (B) Thalamus
(C) Hypothalamus (D) Pons varoli
61. Hypersecretion of GH leads to
(A) Goitre (B) Rickets (C) Osteomalacia (D) Gigantism
62. The outermost meninx around brain is
(A) Pia mater (B) Arachnoid mater (C) Duramater (D) Pia arachnoid

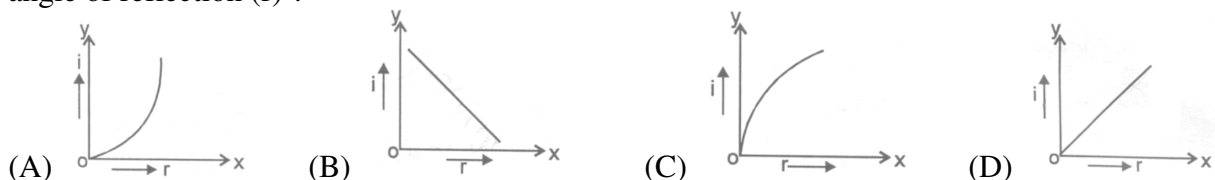
63. Digestion of carbohydrates starts in
(A) Mouth (B) Stomach (C) Small intestine (D) Colon
64. Organ to detect balancing in human body is
(A) Cochlea (B) Vestibule (C) Hypothalamus (D) Retina
65. Patients with renal failure are advised to undergo
(A) Bypass (B) Dialysis
(C) Blood transfusion (D) Bone marrow transplant
66. Find the INCORRECT statement
(A) Contraction of diaphragm leads to inhalation
(B) Trachea is lined by C-shaped cartilage ring to prevent from collapsing
(C) Larynx is the voice box in human located at the upper end of trachea
(D) Human lungs are protected in rib cage formed by sternum dorsally, vertebral column ventrally and ribs laterally
67. Which of these will have maximum oxygen content in blood?
(A) Pulmonary artery (B) Hepatic artery (C) Pulmonary vein (D) Inferior vena cava
68. Which of these activities will not be associated with an increase in heat rate?
(A) Climbing stairs (B) Running (C) Riding a bicycle (D) Playing video games
69. Autonomic nervous system controls
(A) Rate of heart beat (B) Rate of respiration (C) Blood pressure (D) All of these
70. Which of the following hormone is responsible for regulation of sleep wake cycle / biological clock?
(A) Melanin (B) Serotonin (C) Melatonin (D) Thyroxine
71. Which of these decreases blood sugar level and is known as anti-diabetic hormone?
(A) Insulin (B) Glucagon (C) Cortisol (D) Adrenaline
72. Which of these blood group is also regarded as universal recipient?
(A) A (B) B (C) AB (D) O
73. Lymph does not contain
(A) Plasma (B) RBC (C) WBC (D) Glucose
74. Find the CORRECT match of animal with its mode of respiration
(A) Earthworm - trachea
(B) Cockroach - Skin
(C) Fish - Gills
(D) Frog - Gills
75. Presence of hair and diaphragm is an exclusive feature of
(A) Aves (B) Reptiles (C) Amphibians (D) Mammals

SECTION – 3 (PHYSICS)

76. The device which is used for converting mechanical energy into electrical energy is called:
 (A) electric motor (B) Electric generator (C) transformer (D) battery
77. Calculate the amount of charge flowing in 2 minutes in a wire of resistance 10Ω when a potential difference of $20 V$ is applied between its ends
 (A) $120 C$ (B) $240 C$ (C) $20 C$ (D) $4 C$
78. Why long distance power transmission is done at high voltage
 (A) Due to high power loss (B) Due to less power loss
 (C) Due to low conductivity (D) Due to large energy loss
79. What is the time required to change the velocity of an object from $20 m/s$ to $40 m/s$ having acceleration $2 m/s^2$
 (A) $10 s$ (B) $5 s$ (C) $15 s$ (D) $24 s$
80. What is the resistance between points A and B in the circuit shown in the figure?
 (A) 4Ω (B) 6Ω
 (C) 10Ω (D) 8Ω
-
81. Which of the colours of visible light has minimum wavelength?
 (A) Violet (B) red (C) yellow (D) green
82. A man is walking from east to west on a level rough surface. The frictional force on the man is directed
 (A) from the west to east (B) from the east to west
 (C) along the north (D) along the south
83. Pressure at a point inside the liquid does not depend upon :
 (A) the depth of the point below the surface of liquid
 (B) the nature of liquid
 (C) the acceleration due to gravity at that point
 (D) the shape of the container containing the liquid
84. The correct order of conductivity in increasing order for the following metal is
 (A) $Ag < Cu < Al$ (B) $Cu < Ag < Al$ (C) $Al < Cu < Ag$ (D) $Ag < Cu < Al$
85. What is the unit of resistivity in terms of volt, ampere & metre?
 (A) Vm / A (B) Am/V (C) AV / m (D) V / Am
86. When a ray of light enters a transparent medium it undergoes change in:
 (A) Frequency (B) Wavelength (C) velocity (D) both (B) and (C)
87. Two conductors of resistance $R\Omega$ are connected in series and then in parallel. The ratio of the resistance in series and parallel combination is:
 (A) 1 (B) 2 (C) 4 (D) 6

SPACE FOR ROUGH WORK

88. The minimum distance between particles in a medium vibrating with the same phase of a wave is known as –
 (A) Amplitude (B) Wavelength (C) Frequency (D) Phase
89. A mirror forms a virtual image of a real object
 (A) It must be a convex mirror (B) It must be a concave mirror
 (C) It must be a plane mirror (D) It may be any of the mirrors mentioned above
90. A stone is released from an elevator going up with an acceleration 'a'. The acceleration of the stone after the release is
 (A) a upward (B) (g – a) upward (C) (g – a) downward (D) g downward
91. When a bar magnet is broken into two pieces :
 (A) we will have a single pole on each piece (B) each piece will have two unlike poles
 (C) each piece will have two like poles (D) None of these
92. The power of a lens whose focal length is 25 cm is :
 (A) 4 Dioptre (B) 25 Dioptre (C) 0.04 Dioptre (D) 2.5 Dioptre
93. To convert an uncharged object into a positively charged one:
 (A) remove some neutrons (B) add some neutrons
 (C) add some electrons (D) remove some electrons
94. A car travelling on a busy road is an example of:
 (A) Uniform motion (B) Non-uniform motion (C) Constant speed (D) Constant velocity
95. The direction of magnetic lines of force produced by passing a direct current in a straight wire is:
 (A) perpendicular to the conductor & coming outwards
 (B) parallel to conductor
 (C) surrounding the conductor and of circular shape
 (D) perpendicular to the conductor & coming inwards
96. A light & heavy body has equal momentum. Which one has greater kinetic energy?
 (A) The light body (B) The heavy body (C) Both have same K.E. (D) None of these
97. SI unit of pressure is
 (A) pascal (B) dynes/cm² (C) cm of Hg (D) atmosphere
98. A body is moving in a circle with constant speed of 10m/s. Circumference of the circle is 40m. Then the average speed and average velocity when it completes one circle is :
 (A) 10m/s and 10m/s (B) 10m/s and 5 m/s (C) 10m/s and 0m/s (D) 4m/s and 0m/s
99. If the direction of vibration of particles is parallel to the direction of the propagation of a wave, then the wave is –
 (A) Transverse (B) Longitudinal (C) Electromagnetic (D) all of the above
100. Which of the following correctly represents graphical relation between angle of incidence (i) and angle of reflection (r) ?



SPACE FOR ROUGH WORK