

41. IUPAC name of glycerol is :

- (A) 1, 2 - ethane diol
 (B) 1, 2, 3 - propane triol
 (C) 1, 1, 2 - trihydroxy propane
 (D) 1, 2 - dihydroxy ethane

42. (I) $(\text{CH}_3)_3\text{C}^\ominus$

(II) $(\text{CH}_3)_2\text{CH}^\ominus$

(III) $\text{CH}_3 - \text{CH}_2^\ominus$

(IV) $\text{C}_6\text{H}_5\text{CH}_2^\ominus$

The order of decreasing stability of carboanions is :

- (A) I > II > III > IV
 (B) IV > III > II > I
 (C) IV > I > II > III
 (D) I > II > IV > III

43. The position of double bond in alkenes can be located by :

- (A) hydrogenation
 (B) ozonolysis
 (C) photolysis
 (D) hydration

44. (I) aniline

(II) benzene

(III) nitro-benzene

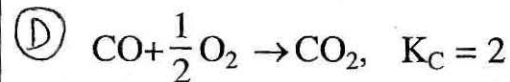
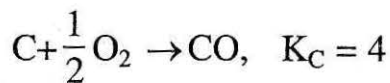
The correct order of reactivity towards the electrophilic substitution of compounds is :

- (A) II > III > I
 (B) I < II > III
 (C) I > II > III
 (D) III > II > I

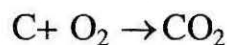
45. The pH of 10^{-8}M solution of HCl in water is :

- (A) 8.0
 (B) -8.0
 (C) between 7 and 8
 (D) between 6 and 7

46. Given :



Then for the reaction,



the value of K_C will be :

- (A) $\frac{1}{2}$
 (B) 2
 (C) 6
 (D) 8

47. The most abundant metal and non-metal in earth's crust are :

- (A) iron and carbon
 (B) iron and oxygen
 (C) aluminium and oxygen
 (D) copper and sulphur

48. Which ore does not undergo self-reduction ?

- (A) HgS
 (B) Ag_2S
 (C) Cu_2S
 (D) PbS

49. Which one of the following pairs will have the same number of molecules ?

(A) 1g. of hydrogen and 44g. of carbon dioxide

(D) (B) 2g. of hydrogen and 44.8 litres of carbon dioxide at NTP

(C) 2g. of hydrogen and 2g. of carbon dioxide

(D) 1g. of hydrogen and 11.2 litres of carbon dioxide at NTP

50. Equal masses of Zinc (atomic mass 65) and Iodine (atomic mass 127) were allowed to react till completion of the reaction to form Zinc iodide. Which substance is left unreacted and to what fraction of its original mass ?

(A) I ; 0.744

(B) Zn ; 0.744

(C) I ; 1.488

(D) Zn ; 1.488

51. For a given mass of gas, if its pressure is reduced to one half and the absolute temperature is doubled, then its volume will be : (where v is the initial volume)

(A) $\frac{V}{4}$

(B) $2V$

(C) $4V$

(D) unaltered

52. Read the statements given below :

(i) When a liquid is taken in a closed vessel, evaporation and condensation take place simultaneously.

(D) (ii) Rate of condensation decreases as the number of molecules in the vapour phase increases.

(iii) When the rate of condensation and rate of evaporation are equal, the pressure exerted by the vapours of the liquid is called vapour pressure.

Out of the above

(A) Both (i) and (ii) are wrong

(B) Both (i) and (iii) are wrong

(C) Both (i) and (ii) are correct

(D) Both (i) and (iii) are correct

53. Considering the nature of overlap of atomic orbitals to form the molecule, which one of the following molecules is different from others ?

(A) Hydrogen

(B) Nitrogen

(C) Oxygen

(D) Fluorine

54. The correct order of the size of sp , sp^2 and sp^3 hybrid orbitals of carbon atom is

(C) (A) $sp > sp^2 > sp^3$

(B) $sp > sp^3 > sp^2$

(C) (C) $sp < sp^2 < sp^3$

(D) $sp^3 > sp > sp^2$

55. The oxidation number of nitrogen in its compounds can lie between :
- (A) -3 to +7
 (B) +3 to +5
 (C) 0 to +5
 (D) -3 to +5
56. 25 ml of aqueous solution of Hydrochloric acid containing 7.3 gms of the acid per litre neutralised 30 ml of aqueous solution of caustic soda. What is the normality of the alkali solution ?
- (A) $\frac{N}{2}$
 (B) $\frac{N}{4}$
 (C) $\frac{N}{6}$
 (D) $\frac{N}{8}$
57. If $E_1, E_2, E_3, \dots, E_n$ represent the energy of 1st, 2nd, 3rd, ..., nth shell respectively, then
- (A) $E_2 - E_1 > E_3 - E_2 > \dots > E_n - E_{n-1}$
 (B) $E_2 - E_1 < E_3 - E_2 < \dots < E_n - E_{n-1}$
 (C) $E_2 - E_1 = E_3 - E_2 = \dots = E_n - E_{n-1}$
 (D) None of the above is correct
58. Which set of quantum numbers is **not** correct ?
- | | n | l | m | s |
|-----|-----|-----|-----|----------------|
| (A) | 2 | 1 | 0 | $+\frac{1}{2}$ |
| (B) | 2 | 2 | -1 | $+\frac{1}{2}$ |
| (C) | 2 | 1 | +1 | $-\frac{1}{2}$ |
| (D) | 3 | 2 | 0 | $-\frac{1}{2}$ |
59. In the modern periodic table, the four nearest diagonal neighbours of the element with atomic number 14 are :
- (A) Al, Ge, Zn, N
 (B) N, As, Ga, B
 (C) C, O, Ge, Se
 (D) P, Al, C, Ge
60. The ionic radii of $O^{2-}, F^-, Na^+, Mg^{2+}$ and Al^{3+} show :
- (A) a significant decrease from O^{2-} to Al^{3+}
 (B) an increase from O^{2-} to F^- and then decrease from Na^+ to Al^{3+}
 (C) a decrease from O^{2-} to F^- and then increase from Na^+ and Al^{3+}
 (D) a significant increase from O^{2-} to Al^{3+}

61. What will be the genotypic ratio obtained in F_1 generation from a cross of $AaBB \times aaBB$?
- (A) 1 $AaBB$: 3 $aaBB$
- (B) 3 $AaBB$: 1 $aaBB$ (D)
- (C) 2 $AaBB$: 1 $aaBB$
- (D) 1 $AaBB$: 1 $aaBB$
62. Which one is the example of test cross ?
- (A) $Tt \times TT$
- (B) $TT \times TT$ (D)
- (C) $tt \times tt$
- (D) $Tt \times tt$
63. Which class of fungi does cause rust disease of wheat ?
- (A) Phycomycetes
- (B) Ascomycetes (C)
- (C) Basidiomycetes
- (D) Deuteromycetes
64. Which is not a preventive measure of plant disease control ?
- (A) Crop rotation
- (B) Spraying of fungicide (B)
- (C) Mixed cropping
- (D) Spacing
65. Which one is different from other three in chromosome number ?
- (A) Zygote
- (B) Embryo (C)
- (C) Endosperm
- (D) Seed coat
66. The plant part used as an inoculum for tissue culture is called :
- (A) Stem cell
- (B) Callus (C)
- (C) Explant
- (D) Somatic embryo

67. Which is unrelated pair ?

- (A) Yeast – Budding
 (B) Bacteria – Fission
 (C) Chrysanthemum – Seeds
 (D) Banana – Sucker

68. Process of development of fruits without fertilization is called :

- (A) Parthenogenesis
 (B) Abiogenesis
 (C) Spermatogenesis
 (D) Organogenesis

69. Unicellular eukaryotic organisms are grouped under :

- (A) Monera
 (B) Protista
 (C) Fungi
 (D) Animalia

70. Read the statements and mark the organism for which the statements are applicable :

- (i) Fresh water, very few marine and autotrophic
 (ii) Thallus tubular and coenocytic
 (iii) Asexual reproduction by multicellular zoospores
 (iv) Sexual reproduction oogamous

- (A) *Spirogyra*
 (B) *Oedogonium*
 (C) *Vaucheria*
 (D) *Chara*

71. Which one is a living fossil ?

- (A) *Riccia*
 (B) *Selaginella*
 (C) *Ginkgo*
 (D) *Pinus*

72. Where can ex situ conservation be done ?

- (A) National park
 (B) Botanical garden
 (C) Biosphere reserve
 (D) Sanctuary

73. The first reaction of photosynthesis is :

- (A) Photolysis of water
 (B) NADPH formation
 (C) ATP formation
 (D) Excitation of chlorophyll

74. In C-4 plants, the first stable product of CO₂ fixation in bundle sheath cells is :

- (A) 3-Phosphoglyceric acid
 (B) Phosphoenolpyruvate
 (C) Dihydroxyacetone phosphate
 (D) Oxaloacetate

75. Which is the hormone secreted from the aleurone layer of maize seed during germination ?
- (A) Ethylene
(B) Abscisic acid
(C) Gibberellic acid
(D) Cytokinin
76. Which is the hormone present in the maximal amount in apical region of shoot ?
- (A) Ethylene
(B) Abscisic acid
(C) Florigen
(D) Auxin
77. Casparian thickenings are present in radial walls of:
- (A) Pith cells
(B) Epidermis
(C) Pericycle
(D) Endodermis
78. Which is unrelated pair ?
- (A) Sclerenchyma – Nucleated
(B) Parenchyma – Intercellular spaces
(C) Collenchyma – Living
(D) Epidermis – Guard cells
79. What is the identifying feature of roots ?
- (A) Vascular bundles scattered
(B) Vascular bundles collateral
(C) Vascular bundles siphonostelic
(D) Vascular bundles radial
80. The primary acceptor of electron from the photosystem – II reaction centre, P680, is :
- (A) Plastoquinone
(B) Pheophytin
(C) Cytochrome
(D) Ferredoxin

81. Read the statements and indicate the correct one :
- (i) Cerebellum is present on the posterior part of hind brain.
 (ii) Cerebellum is the second largest part of the brain.
 (iii) Cerebellum helps to maintain the equilibrium and balance of the body.
- (A) (i) and (iii) right but (ii) wrong **(C)**
 (B) (i) and (ii) right but (iii) wrong
 (C) (ii) and (iii) right but (i) wrong
 (D) (i), (ii) and (iii) all are right
82. Which hormone is produced in human females, if pregnancy has occurred ?
- (A) Estrogen
 (B) Progesterone **(D)**
 (C) Leuteinizing hormone
 (D) Chorionic gonadotropin
83. In which part of the sperm is actual genetic material present ?
- (A) Tail
 (B) Head **(B)**
 (C) Middle piece
 (D) Neck
84. The testes descend into scrotal sacs outside the abdomen because sperm formation requires :
- (A) High temperature
 (B) Low temperature **(B)**
 (C) More space
 (D) Less space
85. Which vitamin is necessary for formation of RBC ?
- (A) B₁₂
 (B) D **(A)**
 (C) B₆
 (D) A
86. Which chamber of heart is functionally most efficient ?
- (A) Left auricle
 (B) Left ventricle **(B)**
 (C) Right auricle
 (D) Right ventricle
87. The type of nephron which becomes functional during acute shortage of water is called :
- (A) Glomerular nephron
 (B) Macula densa **(D)**
 (C) Cortical nephron
 (D) Juxtamedullary nephron

88. Which hormone does increase the permeability of DCT to water ?
 (A) TSH
 (B) FSH
 (C) Oxytocin
 (D) ADH
89. Who did propose the scheme for five kingdom classification ?
 (A) John Ray
 (B) Whittaker
 (C) Haeckel
 (D) Mayr
90. In which type of cell is nuclear membrane absent ?
 (A) Plant
 (B) Human
 (C) Prokaryotic
 (D) Eukaryotic
91. Which is the longest phase of mitosis ?
 (A) Metaphase
 (B) Telophase
 (C) Anaphase
 (D) Prophase
92. Read the statements and indicate the correct one :
 (i) Birds of female and male have ZW and ZZ sex chromosomes respectively.
 (ii) The method of preparing linkage maps of a species is called chromosome mapping.
 (iii) 10% crossover or recombination is 1 centimorgan (cM)
93. Which of the following was the cause of Bhopal gas tragedy ?
 (A) Hydrogen cyanide
 (B) Potassium cyanide
 (C) Carbon monoxide
 (D) Methyl isocyanate
94. Which enzyme does cause the curdling of milk in herbivorous mammals ?
 (A) Maltase
 (B) Renin
 (C) Trypsin
 (D) Lactase

95. At the end of glycolysis, each molecule of glucose produces how many molecules of pyruvate?

(A) 2

6 (B) 4 (A)

(C) 36

(D) 38

96. The high energy compound which enters into mitochondria to start Krebs cycle is called :

(A) Lactic acid

✓ (B) Acetyl CoA (B)

(C) Fatty acid

(D) Amino acid

97. Who did proposed the 'Genic balance theory' of sex determination?

✓ (A) Bridge (A)

(B) Johannsen

(C) Karl Correns

(D) Murray Barr

98. From which country was the phenomenon of industrial melanism first reported ?

(A) United Kingdom

6 (B) USA (A)

(C) China

(D) India

99. Which type of example is Mule ?

(A) Habitat isolation

(B) Mechanical isolation (C)

6 (C) Hybrid sterility

(D) Hybrid breakdown

100. What does cause increase in skin cancer and high mutation rate ?

(A) Ozone layer depletion (A)

✓ (B) Acid rain

(C) Photochemical smog

(D) Carbon dioxide pollution