NEET(UG) 2019

CHEMISTRY

Q46. The number of sigma (σ) and pi (π) bonds in pent-2-en-4-yne is-

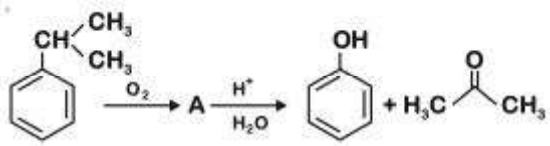
(1) 10σ bonds and 3π bonds

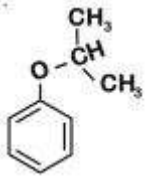
(2) 8σ bonds and 5π bonds

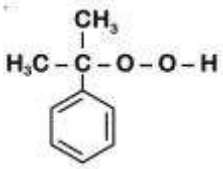
(3) 11σ bonds and 2π bonds

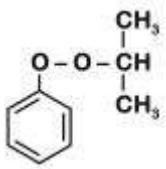
(4) 13σ bonds and no π bonds

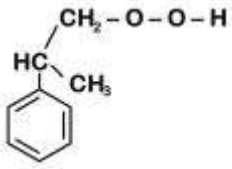
Q47. The structure of intermediate A in the following reaction, is-



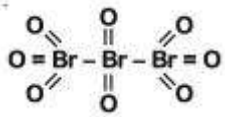
(1) 

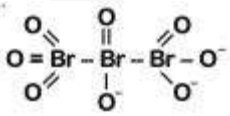
(2) 

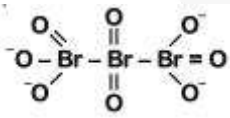
(3) 

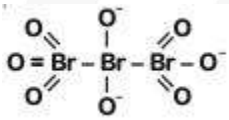
(4) 

Q48. The correct structure of tribromooctaoxide is-

(1) 

(2) 

(3) 

(4) 

Q49. 4d, 5p, 5f and 6p orbitals are arranged in the order of decreasing energy. The correct option is-

(1) 5f > 6p > 5p > 4d
(2) 6p > 5f > 5p > 4d
(3) 6p > 5f > 4d > 5p
(4) 5f > 6p > 4d > 5p

Q50. Which of the following reactions are disproportionation reaction?

(a) $2Cu^{+} \rightarrow Cu^{2+} + Cu^{0}$

(b) $3MnO_4^{2-} + 4H^{+} \rightarrow 2MnO_4^{-} + MnO_2 + 2H_2O$

(c) $2KMnO_4 \xrightarrow{\Delta} K_2MnO_4 + MnO_2 + O_2$

(d) $2MnO_4^{-} + 3Mn^{2+} + 2H_2O \rightarrow 5MnO_2 + 4H^{\oplus}$

Select the correct option from the following

(1) (a) and (b) only
(2) (a), (b) and (c)
(3) (a), (c) and (d)
(4) (a) and (d) only

Q51. Under isothermal condition, a gas at 300 K expands from 0.1 L to 0.25 L against a contant external pressure of 2 bar. The work done by the gas is-

(Given that 1 L bar = 100 J)

(1) –30 J
(2) 5 kJ
(3) 25 J
(4) 30 J

Q52. Among the following, the one that is not a green house gas is

(1) Nitrous oxide (2) Methane (3) Ozone (4) Sulphur dioxide

Q53. For the cell reaction

$2Fe^{3+}(aq) + 2I^{-}(aq) \rightarrow 2Fe^{2+}(aq) + I_2(aq)$

$E^{\ominus}_{cell} = 0.24V$ at 298K The standard Gibbs energy $\left(\Delta_r G^{\ominus}\right)$ of the cell reaction is :

[Given that Faraday constant F = 96500 C mol^{-1}]

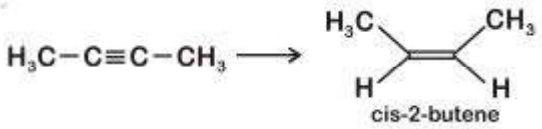
(1) – 46.32 kJ mol^{-1} (2) – 23.16 kJ mol^{-1}

(3) 46.32 kJ mol^{-1} (4) 23.16 kJ mol^{-1}

Q54. Enzymes that utilize ATP in phosphate transfer require an alkaline earth metal (M) as the cofactor. M is :

(1) Be (2) Mg (3) Ca (4) Sr

Q55. The most suitable reagent for the following conversion, is :



(1) Na/liquid NH_3 (2) H_2, Pd/C, quinoline

(3) Zn/HCl (4) Hg^{2+}/H^{+}, H_2O

Q56. Which is the correct thermal stability order for H_2E (E = O, S, Se, Te and Po)?

(1) $H_2S < H_2O < H_2Se < H_2Te < H_2Po$

(2) $H_2O < H_2S < H_2Se < H_2Te < H_2Po$

(3) $H_2Po < H_2Te < H_2Se < H_2S < H_2O$

(4) $H_2Se < H_2Te < H_2Po < H_2O < H_2S$

Q57. Which of the following is incorrect statement?

(1) PbF_4 is covalent in nature

(2) $SiCl_4$ is easily hydrolysed

(3) GeX_4 (X = F, Cl, Br, I) is more stable thanGeX_2

(4) SnF_4 is ionic in nature

Q58. Match the following :

(a) Pure nitrogen	(i) Chlorine
(b) Haber process	(ii) Sulphuric acid
(c) Contact process	(iii) Ammonia
(d) Deacon's process	(iv) Sodium azide or Barium azide

Which of the following is the correct option?

	(a)	(b)	(c)	(d)
(1)	(i)	(ii)	(iii)	(iv)
(2)	(ii)	(iv)	(i)	(iii)
(3)	(iii)	(iv)	(ii)	(i)
(4)	(iv)	(iii)	(ii)	(i)

Q59. Which of the following diatomic molecular species has only π bonds according to Molecular Orbital Theory?

(1) O_2 (2) N_2 (3) C_2 (4) Be_2

Q60. For the second period elements the correct increasing order of first ionisation enthalpy is:

(1) Li < Be < B < C < N < O < F < Ne

(2) Li < B < Be < C < O < N < F < Ne

(3) Li < B < Be < C < N < O < F < Ne

(4) Li < Be < B < C < O < N < F < Ne

Q61. The biodegradable polymer is:

(1) Nylon-6,6 (2) Nylon-2-Nylon 6 (3) Nylon-6 (4) Buna-S

Q62. pH of a saturated solution of $Ca(OH)_2$ is 9. The solubility product (K_{sp}) of $Ca(OH)_2$ is:

(1) 0.5×10^{-15} (2) 0.25×10^{-10} (3) 0.125×10^{-15} (4) 0.5×10^{-10}

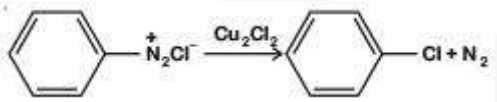
Q63. If the rate constant for a first order reaction is k, the time (t) required for the completion of 99% of the reaction is given by:

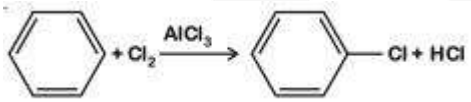
(1) t = 0.693/k (2) t = 6.909/k (3) t = 4.606/k (4) t = 2.303/k

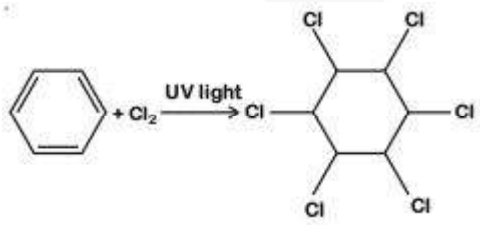
Q64. The non-essential amino acid among the following is:

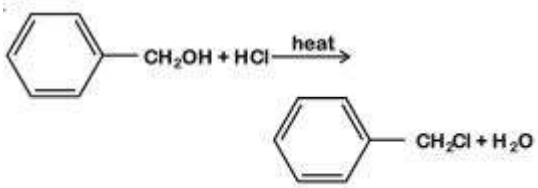
(1) Valine (2) Leucine (3) Alanine (4) Lysine

Q65. Among the following, the reaction that proceeds through an electrophilic substitution, is:

(1) 

(2) 

(3) 

(4) 

Q66. The mixture that forms maximum boiling azeotrope is:

(1) Water + Nitric acid
(2) Ethanol + Water
(3) Acetone + Carbon disulphide
(4) Heptane + Octane

Q67. For the chemical reaction

$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$

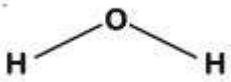
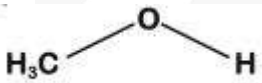
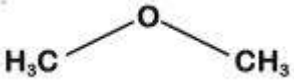
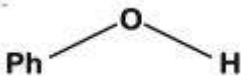
The correct option is:

(1) $-\frac{1}{3}\frac{d[H_2]}{dt} = -\frac{1}{2}\frac{d[NH_3]}{dt}$
(2) $-\frac{d[N_2]}{dt} = 2\frac{d[NH_3]}{dt}$
(3) $-\frac{d[N_2]}{dt} = \frac{1}{2}\frac{d[NH_3]}{dt}$
(4) $3\frac{d[H_2]}{dt} = 2\frac{d[NH_3]}{dt}$

Q68. The number of moles of hydrogen molecules required to produce 20 moles of ammonia through Haber's process is :

(1) 10 (2) 20 (3) 30 (4) 40

Q69. The compound that is most difficult to protonate is :

(1) 
(2) 
(3) 
(4) 

Q70. For an ideal solution, the correct option is :

(1) $\Delta_{mix}S = 0$ at constant T and P
(2) $\Delta_{mix}V \neq$ at constant T and P
(3) $\Delta_{mix}H = 0$ at constant T and P
(4) $\Delta_{mix}G = 0$ at constant T and

Q71. Conjugate base for Brönsted acids H_2O and HF are :

(1) OH^- and H_2F^+, respectively
(2) H_3O^+ and F^-, respectively
(3) OH^- and F^-, respectively
(4) H_3O^+ and H_2F^+, respectively

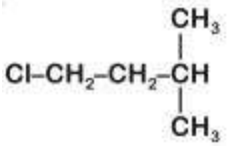
Q72. Which mixture of the solutions will lead to the formation of negatively charged colloidal $[AgI]I^-$ sol ?

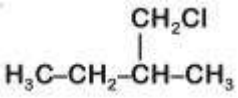
(1) 50 mL of 1 M $AgNO_3$ + 50 mL of 1.5 M KI
(2) 50 mL of 1 M $AgNO_3$ + 50 mL of 2 M KI
(3) 50 mL of 2 M $AgNO_3$ + 50 mL of 1.5 M KI
(4) 50 mL of 0.1 M $AgNO_3$ + 50 mL of 0.1 M KI

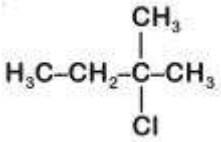
Q73. Among the following, the narrow spectrum antibiotic is :

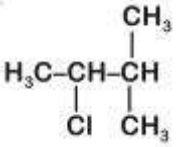
(1) Penicillin G (2) Ampicillin (3) Amoxycillin (4) Chloramphenicol

Q74. An alkene "A" on reaction with O_3 and $Zn–H_2O$ gives propanone and ethanal in equimolar ratio. Addition of HCl to alkene "A" gives "B" as the major product. The structure of product "B" is:

(1) 

(2) 

(3) 

(4) 

Q75. What is the correct electronic configuration of the central atom in $K_4[Fe(CN)_6]$ based on crystal field theory?

(1) $t_{2g}^4 e_g^2$ (2) $t_{2g}^6 e_g^0$ (3) $e^3 t_2^3$ (4) $e^4 t_2^2$

Q76. Identify the incorrect statement related to PCl_5 from the following:

(1) Three equatorial P–Cl bonds make an angle of 120° with each other

(2) Two axial P–Cl bonds make an angle of 180° with each other

(3) Axial P–Cl bonds are longer than equatorial P–Cl bonds

(4) PCl_5 molecule is non-reactive

Q77. Which will make basic buffer?

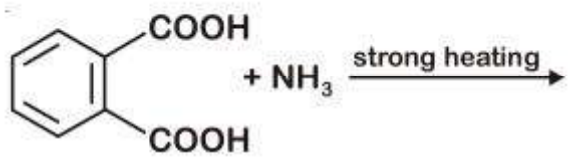
(1) 50 mL of 0.1 M NaOH + 25 mL of 0.1 MCH_3COOH

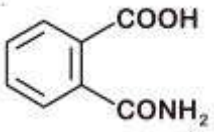
(2) 100 mL of 0.1 M CH_3COOH + 100 mL of 0.1 MNaOH

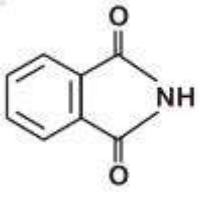
(3) 100 mL of 0.1 M HCl + 200 mL of 0.1 MNH4OH

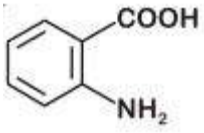
(4) 100 mL of 0.1 M HCl + 100 mL of 0.1 MNaOH

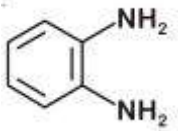
Q78. The major product of the following reaction is:



(1) 

(2) 

(3) 

(4) 

Q79. Match the Xenon compounds in Column-I with its structure in Column-II and assign the

Column-I	Column-II
(a) XeF_4	(i) Pyramidal
(b) XeF_6	(ii) Square planar
(c) $XeOF_4$	(iii) Distorted octahedral
(d) XeO_3	(iv) Square pyramidal

Code:

	(a)	(b)	(c)	(d)
(1)	(i)	(ii)	(iii)	(iv)
(2)	(ii)	(iii)	(iv)	(i)
(3)	(ii)	(iii)	(i)	(iv)
(4)	(iii)	(iv)	(i)	(ii)

Q80. The manganate and permanganate ions are tetrahedral, due to :

(1) The π -bonding involves overlap of p-orbitals of oxygen with d-orbitals of manganese

(2) There is no π-bonding

(3) The π-bonding involves overlap of p-orbitals of oxygen with p-orbitals of manganese

(4) The π-bonding involves overlap of d-orbitals of oxygen with d-orbitals of manganese

Q81. Which of the following species is not stable?

(1) $[SiF_6]^{2-}$ (2) $[GeCl_6]^{2-}$ (3) $[Sn(OH)_6]^{2-}$ (4) $[SiCl_6]^{2-}$

Q82. For a cell involving one electron $E^\circ_{cell} = 0.59$ V at 298 K, the equilibrium constant for the cell reaction is :

$$\left[\text{Given that } \frac{2.303RT}{F} = 0.059V \text{ at } T = 298K\right]$$

(1) 1.0×10^2

(2) 1.0×10^5

(3) 1.0×10^{10}

(4) 1.0×10^{30}

Q83. Which of the following is an amphoteric hydroxide?

(1) $Sr(OH)_2$ (2) $Ca(OH)_2$ (3) $Mg(OH)_2$ (4) $Be(OH)_2$

Q84. A gas at 350 K and 15 bar has molar volume 20 percent smaller than that for an ideal gas under the same conditions. The correct option about the gas and its compressibility factor (Z) is :

(1) $Z > 1$ and attractive forces are dominant (2) $Z > 1$ and repulsive forces are dominant

(3) $Z < 1$ and attractive forces are dominant (4) $Z < 1$ and repulsive forces are dominant

Q85. A compound is formed by cation C and anion A. The anions form hexagonal close packed (hcp) lattice and the cations occupy 75% of octahedral voids. The formula of the compound is :

(1) C_2A_3 (2) C_3A_2 (3) C_3A_4 (4) C_4A_3

Q86. In which case change in entropy is negative?

(1) Evaporation of water

(2) Expansion of a gas at constanttemperature

(3) Sublimation of solid to gas

(4) $2H(g) \rightarrow H_2(g)$

Q87. Which of the following series of transitions in the spectrum of hydrogen atom fall in visible region?

(1) Lyman series (2) Balmer series (3) Paschen series (4) Brackett series

Q88. The method used to remove temporary hardness of water is :

(1) Calgon's method

(2) Clark's method

(3) Ion-exchange method

(4) Synthetic resins method

Q89. Which one is malachite from the following?

(1) $CuFeS_2$ (2) $Cu(OH)_2$ (3) Fe_3O_4 (4) $CuCO_3.Cu(OH)_2$

Q90. The correct order of the basic strength of methyl substituted amines in aqueous solution is :

(1) $(CH_3)_2NH > CH_3NH_2 > (CH_3)_3N$

(2) $(CH_3)_3N > CH_3NH_2 > (CH_3)_2NH$

(3) $(CH_3)_3N > (CH_3)_2NH > CH_3NH_2$

(4) $CH_3NH_2 > (CH_3)_2NH > (CH_3)_3N$

Q91. The Earth Summit held in Rio de Janeiro in 1992 was called

(1) to reduce CO_2 emissions and global warming

(2) for conservation of biodiversity and sustainable utilization of its benefits

(3) to assess threat posed to native species by invasive weed species

(4) for immediate steps to discontinue use of CFCs that were damaging the ozone layer

Q92. Colostrum the yellowish fluid, secreted by mother during the initial days of lactation is very essential to impart immunity to the new born infants because it contains

(1) Natural killer cells

(2) Monocytes

(3) Macrophages

(4) Immunoglobulin A

Q93. Grass leaves curl inwards during very dry weather. Select the most appropriate reason from the following

(1) Closure of stomata

(2) Flaccidity of bulliform cells

(3) Shrinkage of air spaces in spongy mesophyll

(4) Tyloses in vessels

Q94. The shorter and longer arms of a submetacentric chromosome are referred to as-

(1) s-arm and l-arm respectively

(2) p-arm and q-arm respectively

(3) q-arm and p-arm respectively

(4) m-arm and n-arm respectively

Q95. Respiratory Quotient (RQ) value of tripalmitin is

(1) 0.9 (2) 0.7 (3) 0.07 (4) 0.09

Q96. Which of the following is a commercial blood cholesterol lowering agent?

(1) Cyclosporin A (2) Statin (3) Streptokinase (4) Lipases

Q97. Match the following structures with their respective location in organs

(a) Crypts of Lieberkuhn	(i) Pancreas
(b) Glisson's Capsule	(ii) Duodenum
(c) Islets of Langerhans	(iii) Small intestine
(d) Brunner's Glands	(iv) Liver

Select the correct option from the following

	(a)	(b)	(c)	(d)
(1)	(iii)	(i)	(ii)	(iv)
(2)	(ii)	(iv)	(i)	(iii)
(3)	(iii)	(iv)	(i)	(ii)
(4)	(iii)	(ii)	(i)	(iv)

Q98. Which of the following is the most important cause for animals and plants being driven to extinction?

(1) Habitat loss and fragmentation (2) Drought and floods

(3) Economic exploitation (4) Alien species invasion

Q99. Which part of the brain is responsible for thermoregulation?

(1) Cerebrum (2) Hypothalamus

(3) Corpus callosum (4) Medulla oblongata

Q100. Consider following features

(a) Organ system level of organisation

(b) Bilateral symmetry

(c) True coelomates with segmentation of body

Select the correct option of animal groups which possess all the above characteristics

(1) Annelida, Arthropoda and Chordata

(2) Annelida, Arthropoda and Mollusca

(3) Arthropoda, Mollusca and Chordata

(4) Annelida, Mollusca and Chordata

Q101. Select the correct sequence of organs in the alimentary canal of cockroach starting from mouth

(1) Pharynx → Oesophagus → Crop → Gizzard → Ileum → Colon → Rectum

(2) Pharynx → Oesophagus → Gizzard → Crop → Ileum → Colon → Rectum

(3) Pharynx → Oesophagus → Gizzard → Ileum ? Crop → Colon → Rectum

(4) Pharynx → Oesophagus → Ileum → Crop? Gizzard → Colon → Rectum

Q102. Which of the following pairs of gases is mainly responsible for green house effect?

(1) Ozone and Ammonia
(2) Oxygen and Nitrogen
(3) Nitrogen and Sulphur dioxide
(4) Carbon dioxide and Methane

Q103. Which of the following muscular disorders is inherited?

(1) Tetany
(2) Muscular dystrophy
(3) Myasthenia gravis
(4) Botulism

Q104. The ciliated epithelial cells are required to move particles or mucus in a specific direction. In humans, these cells are mainly present in

(1) Bile duct and Bronchioles
(2) Fallopian tubes and Pancreatic duct
(3) Eustachian tube and Salivary duct
(4) Bronchioles and Fallopian tubes

Q105. Match the Column-I with Column-II

Column-I	Column-II
(a) P - wave	(i) Depolarisation of ventricles
(b) QRS complex	(ii) Repolarisation of ventricles
(c) T - wave	(iii) Coronary ischemia
(d) Reduction in the	(iv) Depolarisation of size of T-wave atria
	(v) Repolarisation of atria

Select the correct option.

	(a)	(b)	(c)	(d)
(1)	(iv)	(i)	(ii)	(iii)
(2)	(iv)	(i)	(ii)	(v)
(3)	(ii)	(i)	(v)	(iii)
(4)	(ii)	(iii)	(v)	(iv)

Q106. Which one of the following is not a method of in situ conservation of biodiversity?

(1) Biosphere Reserve
(2) Wildlife Sanctuary
(3) Botanical Garden
(4) Sacred Grove

Q107. In a species, the weight of newborn ranges from 2 to 5 kg. 97% of the newborn with an average weight between 3 to 3.3 kg survive whereas 99% of the infants born with weight from 2 to 2.5 kg or 4.5 to 5 kg die. Which type of selection process is taking place?

(1) Directional Selection
(2) Stabilizing Selection
(3) Disruptive Selection
(4) Cyclical Selection

Q108. The correct sequence of phases of cell cycle is-

(1) $M \rightarrow G_1 \rightarrow G_2 \rightarrow S$
(2) $G_1 \rightarrow G_2 \rightarrow S \rightarrow M$
(3) $S \rightarrow G_1 \rightarrow G_2 \rightarrow M$
(4) $G_1 \rightarrow S \rightarrow G_2 \rightarrow M$

Q109. How does steroid hormone influence the cellular activities?

(1) Changing the permeability of the cell membrane

(2) Binding to DNA and forming a gene-hormone complex

(3) Activating cyclic AMP located on the cell membrane

(4) Using aquaporin channels as second messenger

Q110. Which of the following statements is not correct?

(1) Lysosomes have numerous hydrolytic enzymes

(2) The hydrolytic enzymes of lysosomes are active under acidic pH

(3) Lysosomes are membrane bound structures

(4) Lysosomes are formed by the process of packaging in the endoplasmic reticulum

Q111. Which one of the following statements regarding post-fertilization development in flowering plants is incorrect?

(1) Ovary develops into fruit

(2) Zygote develops into embryo

(3) Central cell develops into endosperm

(4) Ovules develop into embryo sac

Q112. Concanavalin A is

(1) an alkaloid (2) an essential oil (3) a lectin (4) a pigment

Q113. Which one of the following equipments is essentially required for growing microbes on a large scale, for industrial production of enzymes?

(1) BOD incubator (2) Sludge digester (3) Industrial oven (4) Bioreactor

Q114. Consider the following statement :

(A) Coenzyme or metal ion that is tightly bound to enzyme protein is called prosthetic group.

(B) A complete catalytic active enzyme with its bound prosthetic group is called apoen zyme.

Select the correct option.

(1) Both (A) and (B) are true.

(2) (A) is true but (B) is false.

(3) Both (A) and (B) are false.

(4) (A) is false but (B) is true.

Q115. Purines found both in DNA and RNA are

(1) Adenine and thymine

(2) Adenine and guanine

(3) Guanine and cytosine

(4) Cytosine and thymine

Q116. Select the correct sequence for transport of sperm cells in male reproductive system.

(1) Testis → Epididymis → Vasa efferentia → Rete testis → Inguinal canal → Urethra
(2) Seminiferous tubules → Rete testis → Vasa efferentia → Epididymis → Vas deferens → Ejaculatory duct → Urethra → Urethral meatus
(3) Seminiferous tubules → Vasa efferentia → Epididymis → Inguinal canal → Urethra
(4) Testis → Epididymis → Vasa efferentia → Vas deferens → Ejaculatory duct → Inguinal canal → Urethra → Urethral meatus

Q117. Match the hominids with their correct brain size :

(a) Homo habilis (i) 900 cc
(b) Homo neanderthalensis (ii) 1350 cc
(c) Homo erectus (iii) 650-800 cc
(d) Homo sapiens (iv) 1400 cc

Select the correct option.

	(a)	(b)	(c)	(d)
(1)	(iii)	(i)	(iv)	(ii)
(2)	(iii)	(ii)	(i)	(iv)
(3)	(iii)	(iv)	(i)	(ii)
(4)	(iv)	(iii)	(i)	(ii)

Q118. Variations caused by mutation, as proposed by Hugo de Vries are-

(1) random and directional
(2) random and directionless
(3) small and directional
(4) small and directionless

Q119. Which of the following pair of organelles does not contain DNA?

(1) Mitochondria and Lysosomes
(2) Chloroplast and Vacuoles
(3) Lysosomes and Vacuoles
(4) Nuclear envelope and Mitochondria

Q120. Due to increasing air-borne allergens and pollutants, many people in urban areas are suffering from respiratory disorder causing wheezing due to

(1) benign growth on mucous lining of nasal cavity
(2) inflammation of bronchi and bronchioles
(3) proliferation of fibrous tissues and damage of the alveolar walls
(4) reduction in the secretion of surfactants by pneumocytes.

Q121. Select the incorrect statement.

(1) Male fruit fly is heterogametic
(2) In male grasshoppers 50% of sperms have no sex-chromosome
(3) In domesticated fowls, sex of progeny depends on the type of sperm rather than egg
(4) Human males have one of their sex- chromosome much shorter than the other

Q122. DNA precipitation out of a mixture of biomolecules can be achieved by treatment with

(1) Isopropanol
(2) Chilled ethanol
(3) Methanol at room temperature
(4) Chilled chloroform

Q123. Select the correct group of biocontrol agents.

(1) Bacillus thuringiensis, Tobacco mosaic virus, Aphids
(2) Trichoderma, Baculovirus, Bacillus thuringiensis
(3) Oscillatoria, Rhizobium, Trichoderma
(4) Nostoc, Azospirillium, Nucleopolyhedrovirus

Q124. Select the incorrect statement.

(1) Inbreeding increases homozygosity
(2) Inbreeding is essential to evolve purelines in any animal.
(3) Inbreeding selects harmful recessive genes that reduce fertility and productivity
(4) Inbreeding helps in accumulation of superior genes and elimination of undesirable genes

Q125. Match the following organisms with the products they produce

(a) Lactobacillus
(b) Saccharomyces
(c) Aspergillus niger
(d) Acetobacter aceti

(i) Cheese
(ii) Curd cerevisiae
(iii) Citric Acid
(iv) Bread
(v) Acetic Acid

Select the correct option.

	(a)	(b)	(c)	(d)
(1)	(ii)	(iv)	(v)	(iii)
(2)	(ii)	(iv)	(iii)	(v)
(3)	(iii)	(iv)	(v)	(i)
(4)	(ii)	(i)	(iii)	(v)

Q126. What is the direction of movement of sugars in phloem?

(1) Non-multidirectional
(2) Upward
(3) Downward
(4) Bi-directional

Q127. In some plants, the female gamete develops into embryo without fertilization. This phenomenon is known as

(1) Autogamy
(2) Parthenocarpy
(3) Syngamy
(4) Parthenogenesis

Q128. Persistent nucellus in the seed is known as

(1) Chalaza
(2) Perisperm
(3) Hilum
(4) Tegmen

Q129. What map unit (Centimorgan) is adopted in the construction of genetic maps?

(1) A unit of distance between two expressed genes representing 10% cross over.

(2) A unit of distance between two expressed genes representing 100% cross over.

(3) A unit of distance between genes on chromosomes, representing 1% cross over.

(4) A unit of distance between genes on chromosomes, representing 50% cross over.

Q130. What would be the heart rate of a person if the cardiac output is 5 L, blood volume in the ventricles at the end of diastole is 100 mL and at the end of ventricular systole is 50 mL?

(1) 50 beats per minute

(2) 75 beats per minute

(3) 100 beats per minute

(4) 125 beats per minute

Q131. Thiobacillus is a group of bacteria helpful in carrying out.

(1) Nitrogen fixation

(2) Chemoautotrophic fixation

(3) Nitrification

(4) Denitrification

Q132. Which of the following factors is responsible for the formation of concentrated urine?

(1) Low levels of antidiuretic hormone

(2) Maintaining hyperosmolarity towards inner medullary interstitium in the kidneys.

(3) Secretion of erythropoietin by Juxtaglomerular complex

(4) Hydrostatic pressure during glomerular filtration

Q133. Which of the following statements regarding mitochondria is incorrect?

(1) Outer membrane is permeable to monomers of carbohydrates, fats and proteins.

(2) Enzymes of electron transport are embedded in outer membrane.

(3) Inner membrane is convoluted with infoldings.

(4) Mitochondrial matrix contains single circular DNA molecule and ribosomes.

Q134. Xylem translocates.

(1) Water only

(2) Water and mineral salts only

(3) Water, mineral salts and some organic nitrogen only

(4) Water, mineral salts, some organic nitrogen and hormones

Q135. Cell in G_0 phase :

(1) exit the cell cycle

(2) enter the cell cycle

(3) suspend the cell cycle

(4) terminate the cell cycle

Q136. Which of the statements given below is not true about formation of Annual Rings in trees?

(1) Annual ring is a combination of spring wood and autumn wood produced in a year

(2) Differential activity of cambium causes light and dark bands of tissue early and late wood respectively.

(3) Activity of cambium depends upon variation in climate.

(4) Annual rings are not prominent in trees of temperate region.

Q137. Which of the following ecological pyramids is generally inverted?

(1) Pyramid of numbers in grassland
(2) Pyramid of energy
(3) Pyramid of biomass in a forest
(4) Pyramid of biomass in a sea

Q138. Placentation in which ovules develop on the inner wall of the ovary or in peripheral part, is

(1) Basal (2) Axile (3) Parietal (4) Free central

Q139. Which of the following protocols did aim for reducing emission of chlorofluorocarbons into the atmosphere?

(1) Montreal Protocol
(2) Kyoto Protocol
(3) Gothenburg Protocol
(4) Geneva Protocol

Q140. Which of the following contraceptive methods do involve a role of hormone?

(1) Lactational amenorrhea, Pills Emergency contraceptives.
(2) Barrier method, Lactational amenorrhea, Pills.
(3) CuT, Pills, Emergency contraceptives.
(4) Pills, Emergency contraceptives, Barrier methods.

Q141. Tidal Volume and Expiratory Reserve Volume of an athlete is 500 mL and 1000 mL, respectively. What will be his Expiratory Capacity if the Residual Volume is 1200 mL?

(1) 1500 mL (2) 1700 mL (3) 2200 mL (4) 2700 mL

Q142. What is the fate of the male gametes discharged in the synergid?

(1) One fuses with egg other(s) degenerate (s) in the synergid.
(2) All fuse with the egg.
(3) One fuses with the egg, other(s) fuse(s) with synergid nucleus.
(4) One fuses with the egg and other fuses with central cell nuclei.

Q143. What is the site of perception of photoperiod necessary for induction of flowering in plants?

(1) Lateral buds (2) Pulvinus (3) Shoot apex (4) Leaves

Q144. Select the correctly written scientific name of Mango which was first described by Carolus Linnaeus.

(1) Mangifera indica Car. Linn.
(2) Mangifera indica Linn.
(3) Mangifera indica
(4) Mangifera Indica

Q145. Following statements describe the characteristics of the enzyme Restriction Endonuclease. Identify the incorrect statement.

(1) The enzyme cuts DNA molecule at identified position within the DNA.
(2) The enzyme binds DNA at specific sites and cuts only one of the two strands.
(3) The enzyme cuts the sugar-phosphate backbone at specific sites on each strand.
(4) The enzyme recognizes a specific palindromic nucleotide sequence in the DNA.

Q146. From evolutionary point of view, retention of the female gametophyte with developing young embryo on the parent sporophyte for some time, is first observed in.

(1) Liverworts (2) Mosses (3) Pteridophytes (4) Gymnosperms

Q147. In Antirrhinum (Snapdragon), a red flower was crossed with a white flower and in F_1 generation pink flowers were obtained. When pink flowers were selfed, the F_2 generation showed white, red and pink flowers. Choose the incorrect statement from the following :

(1) This experiment does not follow the Principle of Dominance.

(2) Pink colour in F_1 is due to incompletedominance.

(3) Ratio of F_2 is $\frac{1}{4}$ (Red) : $\frac{2}{4}$ (Pink) : $\frac{1}{4}$ (White)

(4) Law of Segregation does not apply in this experiment

Q148. Conversion of glucose to glucose-6-phosphate, the first irreversible reaction of glycolysis, is catalyzed by

(1) Aldolase (2) Hexokinase

(3) Enolase (4) Phosphofructokinase

Q149. Drug called 'Heroin' is synthesized by

(1) methylation of morphine (2) acetylation of morphine

(3) glycosylation of morphine (4) nitration of morphine

Q150. Select the hormone-releasing Intra-Uterine Devices.

(1) Vaults, LNG-20 (2) Multiload 375, Progestasert

(3) Progestasert, LNG-20 (4) Lippes Loop, Multiload 375

Q151. A gene locus has two alleles A, a. If the frequency of dominant allele A is 0.4, then what will be the frequency of homozygous dominant, heterozygous and homozygous recessive individuals in the population?

(1) 0.36(AA); 0.48(Aa); 0.16(aa) (2) 0.16(AA); 0.24(Aa); 0.36(aa)

(3) 0.16(AA); 0.48(Aa); 0.36(aa) (4) 0.16(AA); 0.36(Aa); 0.48(aa)

Q152. Which of the following is true for Golden rice?

(1) It is Vitamin A enriched, with a gene from daffodil

(2) It is pest resistant, with a gene from Bacillus thuringiensis

(3) It is drought tolerant, developed using Agrobacterium vector

(4) It has yellow grains, because of a gene introduced from a primitive variety of rice

Q153. Pinus seed cannot germinate and established without fungal association. This is because :

(1) its embryo is immature.

(2) it has obligate association with mycorrhizae.

(3) it has very hard seed coat.

(4) its seeds contain inhibitors that present germination.

Q154. Which of the following features of genetic code does allow bacteria to produce human insulin by recombinant DNA technology?

(1) Genetic code is not ambiguous
(2) Genetic code is redundant
(3) Genetic code is nearly universal
(4) Genetic code is specific

Q155. Which of the following sexually transmitted diseases is not completely curable?

(1) Gonorrhoea
(2) Genital warts
(3) Genital herpes
(4) Chlamydiasis

Q156. Which of the following statements is incorrect?

(1) Viroids lack a protein coat.
(2) Viruses are obligate parasites.
(3) Infective constituent in viruses is the protein coat.
(4) Prions consist of abnormally folded proteins.

Q157. Match the following organisms with their respective characteristics :

(a) Pila	(i) Flame cells
(b) Bombyx	(ii) Comb plates
(c) Pleurobrachia	(iii) Radula
(d) Taenia	(iv) Malpighian tubules

Select the correct option from the following :

	(a)	(b)	(c)	(d)
(1)	(iii)	(ii)	(i)	(iv)
(2)	(iii)	(iv)	(ii)	(i)
(3)	(ii)	(iv)	(iii)	(i)
(4)	(iii)	(ii)	(iv)	(i)

Q158. Expressed Sequence Tags (ESTs) refers to :

(1) Genes expressed as RNA
(2) Polypeptide expression
(3) DNA polymorphism
(4) Novel DNA sequences

Q159. Which is of the following statements is incorrect?

(1) Morels and truffles are edible delicacies.
(2) Claviceps is a source of many alkaloids and LSD.
(3) Conidia are produced exogenously and ascospores endogenously.
(4) Yeasts have filamentous bodies with long thread-like hyphae.

Q160. Match Column - I with Column - II

Column - I	Column - II
(a) Saprophyte	(i) Symbiotic association of fungi with plant roots
(b) Parasite	(ii) Decomposition of dead organic materials
(c) Lichens	(iii) Living on living plants or animals
(d) Mycorrhiza	(iv) Symbiotic association of algae and fungi

Choose the correct answer from the option given below

	(a)	(b)	(c)	(d)
(1)	(i)	(ii)	(iii)	(iv)
(2)	(iii)	(ii)	(i)	(iv)
(3)	(ii)	(i)	(iii)	(iv)
(4)	(ii)	(iii)	(iv)	(i)

Q161. Which of the following glucose transporters is insulin-dependent?

(1) GLUT I (2) GLUT II (3) GLUT III (4) GLUT IV

Q162. Which of the following immune responses is responsible for rejection of kidney graft?

(1) Auto-immune response (2) Humoral immune response

(3) Inflammatory immune response (4) Cell-mediated immune response

Q163. Use of an artificial kidney during hemodialysis may result in :

(a) Nitrogenous waste build-up in the body

(b) Non-elimination of excess potassium ions

(c) Reduced absorption of calcium ions from gastro-intestinal tract

(d) Reduced RBC production

Which of the following options is the most appropriate?

(1) (a) and (b) are correct

(2) (b) and (c) are correct

(3) (c) and (d) are correct

(4) (a) and (d) are correct

Q164. Which of the following statements is correct?

(1) Cornea is an external, transparent and protective proteinacious covering of the eye-ball.

(2) Cornea consists of dense connective tissue of elastin and can repair itself.

(3) Cornea is convex, transparent layer which is highly vascularised.

(4) Cornea consists of dense matrix of collagen and is the most sensitive portion the eye.

Q165. The frequency of recombination between gene pairs on the same chromosome as a measure of the distance between genes was explained by :

(1) T.H. Morgan (2) Gregor J. Mendel

(3) Alfred Sturtevant (4) Sutton Boveri

Q166. Match the following genes of the Lac operon with their respective products :

(a) i gene	(i) β -galactosidase
(b) z gene	(ii) Permease
(c) a gene	(iii) Repressor
(d) y gene	(iv) Transacetylase

Select the correct option.

	(a)	(b)	(c)	(d)
(1)	(i)	(iii)	(ii)	(iv)
(2)	(iii)	(i)	(ii)	(iv)
(3)	(iii)	(i)	(iv)	(ii)
(4)	(iii)	(iv)	(i)	(ii)

Q167. It takes very long time for pineapple plants to produce flowers. Which combination of hormones can be applied to artificially induce flowering in pineapple plants throughout the year to increase yield?

(1) Auxin and Ethylene
(2) Gibberellin and Cytokinin
(3) Gibberellin and Abscisic acid
(4) Cytokinin and Abscisic acid

Q168. Identify the cells whose secretion protects the lining of gastro-intestinal tract from various enzymes.

(1) Chief Cells (2) Goblet Cells (3) Oxyntic Cells (4) Duodenal Cells

Q169. Which of the following can be used as a biocontrol agent in the treatment of plant disease?

(1) Trichoderma (2) Chlorella (3) Anabaena (4) Lactobacillus

Q170. Phloem in gymnosperms lacks :

(1) Albuminous cells and sieve cells
(2) Sieve tubes only
(3) Companion cells only
(4) Both sieve tubes and companion cells

Q171. Extrusion of second polar body from egg nucleus occurs :

(1) after entry of sperm but before fertilization
(2) after fertilization
(3) before entry of sperm into ovum
(4) simultaneously with first cleavage

Q172. Under which of the following conditions will there be no change in the reading frame of following mRNA?

5'AACAGCGGUGCUAUU3'

(1) Insertion of G at 5^{th} position
(2) Deletion of G from 5^{th} position
(3) Insertion of A and G at 4th and 5^{th} positions respectively
(4) Deletion of GGU from 7^{th} , 8^{th} and 9^{th} positions

Q173. The concept of "Omnis cellula-e cellula" regarding cell division was first proposed by

(1) Rudolf Virchow (2) Theodor Schwann (3) Schleiden (4) Aristotle

Q174. What triggers activation of protoxin to active Bt toxin of Bacillus thuringiensis in boll worm?

(1) Body temperature
(2) Moist surface of midgut
(3) Alkaline pH of gut
(4) Acidic pH of stomach

Q175. Identify the correct pair representing the causative agent of typhoid fever and the confirmatory test for typhoid.

(1) Plasmodium vivax / UTI test
(2) Streptococcus pneumoniae / Widal test
(3) Salmonella typhi / Anthrone test
(4) Salmonella typhi / Widal test

Q176. What is the genetic disorder in which an individual has an overall masculine development gynaecomastia, and is sterile ?

(1) Turner's syndrome
(2) Klinefelter's syndrome
(3) Edward syndrome
(4) Down's syndrome

Q177. Polyblend, a fine powder of recycled modified plastic, has proved to be a good material for

(1) Making plastic sacks
(2) Use as a fertilizer
(3) Construction of roads
(4) Making tubes and pipes

Q178. Which of these following methods is the most suitable for disposal of nuclear waste?

(1) Shoot the waste into space
(2) Bury the waste under Antarctic ice-cover
(3) Dump the waste within rocks under deep ocean
(4) Bury the waste within rocks deep below the Earth's surface

Q179. Match the following hormones with the respective disease

(a) Insulin
(b) Thyroxin
(c) Corticoids
(d) Growth Hormone
(v) Diabetes mellitus

(i) Addison's disease
(ii) Diabetes insipidus
(iii) Acromegaly
(iv) Goitre

Select the correct option.

(a) (b) (c) (d)

(1) (v) (i) (ii) (iii)
(2) (ii) (iv) (iii) (i)
(3) (v) (iv) (i) (iii)
(4) (ii) (iv) (i) (iii)

Q180. Select the correct option.

(1) 8 th , 9 th and 10 th pairs of ribs articulate directly with the sternum.
(2) 11 th and 12 th pairs of ribs are connected to the sternum with the help of hyaline cartilage.
(3) Each rib is a flat thin bone and all the ribs are connected dorsally to the thoracic vertebrae and ventrally to the sternum.
(4) There are seven pairs of vertebrosternal, three pairs of vertebrochondral and two pairs of vertebral ribs.