Doctor's Zone Institute Pvt. Ltd.

BOOKLET Code: Z (PITA) **NEET 2017**

MOTHER VERSION OF BENGALI QUESTION

1. The protein coat around a virus is called.
1) Trichome 2) Capsule 3) Core 4) Capsid
Ans : (4)

2. Which of the following is not true for callus culture?
1) Meiotic divisions are frequent
2) It can be used for micro propagation
3) Somclonal variation is generated
4) Parenchyama tissue increases by continuous mitotic divisions ANS: (1)

3. The technique of DNA fingerprinting is superior to conventional fingerprinting because it can :
1) Differentiate between polymorphic DNA sequences among individuals.
2) Be generated more rapidly, and is inexpensive.
3) Generate unique fingerprints for each finger.
4) Compare the whole DNA sequence of two individuals. ANS : (1)

4. Consider the following statements And choose the correct option :
1) Six codons do not code for any amino-acid.
2) Codon is read in m-RNA in a contiguous fashion.
3) Three condons function as stop codons.
4) The initiator codon AUG codes for methionine. ANS : (2)
Option :
1) (b), (c) and (d) are wrong
2) (a) is wrong
3) (a), (b) and (d) are wrong
4) (a), (b) and (c) are wrong

5. Speical feature about strobilanthus kunthiana (neelakuranji) is its flowering once is :
1) 6 years 2) 25 years 3) 12 years 4) 5-100 years ANS : (3)

6. Which of the following values will depict correct respiratory quotient when tripalmitin (a fatty acid is used as a respiratory substrate?
1) 0.9 2) 1.1 3) 1 4) 0.7 ANS : (4)

7. An inflorescence with younger flowers at the base and the older ones at its apex is known as :
1) Cymose 2) Hypanthodium 3) Head 4) Racemose ANS : (1)

8. 'MOET' technique is used for super-ovulation in :

1) Chickens 2) Elephants 3) Fish 4) Cattles ANS : (4)

9. Which of the following statements regarding enzyme inhibition is correct?

1) Non competitive inhibition of anenzyme can be overcome by adding large amount of substrate.

2) Non competitive inhibitors often bind to the enzyme irreversibly.

3) Competitive inhibition is seen when a substrate competes with an enzyme for binding to an inhibition protein.

4) Competitive inhibition is seen when the substrate and the inhibitor compete. ANS : (4)

10. Which of the following plants has association with Frankia?

1) Sweet 2) Lentils 3) Alfalfa 4) Alnus ANS : (4)

11. Which statement is wrong about photorespiration?

1) RuBisCO has higher affinity for CO_2 than O_2

2) RuBP binds with O_2 to form molecules of phosphoglycolate

3) Photorespiration occurs in C_3 plants and not C_4 plants

4) There is no synthesis of ATP or NADPH ANS : (2)

12. In gene therapy to treat adenosine deminase deficiency disorder, which of the patients blood cells are used?

1) Both Erythrocytes and Lymphoccytes

2) Thrombocytes

3) Erythrocytes

4) Lymphocytes ANS : (4)

13. Van Mahotsava is festival of :

1) Worshipping trees

2) Conservation of sacred groves

3) Planting trees in open areas

4) Taking oath to protect trees ANS : (3)

14. All the components of the conducting system can generate an action potential for the contraction of heart muscle, but the sino-atrial node acts as the pacemaker because:

1) The sino-artial node has a higher inherent rate of depolarization.

2) The sino-artial node has a lower inherent rate of depolarization.

3) All the other components in heart cannot conduct the action potential.

4) Only the sino-atrial node is auto-excitable and auto-rhythmic. ANS : (2)

15. An athlete while running fell on the track. She used her hands to sustain minimal injury. In the process, her hands received the maximum blow on the joints. Which combination of joints would be badly affected in this accident?

1) Cartilaginous and synovial joints
2) Cartilaginous and synaptic joints
3) Fibrous and cartilaginous joints
4) Fibrous and synovial joint ANS : (4)

16. In roots absorption of water and minerals mostly occurs in the :
1)Meristematic region 2) Root cap
3) Region of elongation 4) Region of maturation ANS: (4)

17. What is not true for an angiospermicc embryo sac?
1) Its formation is preceded by meiosis.
2) One male gamete is discharged into it during fertilization.
3) It is present within an ovule.
4) It represents female gametophyte. ANS : (2)

18. Which one of the following is not true for the experiments of Mendel on pea?
1) His observations were based on natural, open pollination
2) His experiments had large sampling size
3) He chose characters of two contrasting states ANS : (1)
4) He used true-breeding lines

19. The increase in concentration of the toxicant at successive trophic levels is referred to as :
1) Biotransformation 2) Biomagnification 3) Eutrophication 4) Bioremediation
ANS: (2)

20. Which of the following statements is true for phloem in plants?
1) Phloem parenchyama is abundantly present in monocots.
2) Phloem fibres are made up of collenchymatous cells.
3) Sieve tube elements are multicellular with wide lumen and rich cytoplasm.
4) Companion cells help in maintaining the pressure gradient in sieve tubes. ANS : (4)

21. Continued self-pollination results in :
1) Polyembryony
2) Genetic drift
3) Heterosis
4) Inbreeding depression ANS : (4)

22. Which of the following can not be measured by spirrometry?
1) Residual volume
2) Vital capacity
3) Tidal volume ANS : (1)
4) Inspiratory reserve volume

23. Which of the following pairs is not correctly matched? Vegetative Propagules Example
1) Rhizome - Ginger
2) Stolons - Agave

3) Offset - Water hyacinth

4) Eyes - Potato **ANS : (2)**

24. A genetically engineered bacterium first used for cleaning the oil spills, was a species of :

1) Bacillus 2) Rhizobium 3) Eschericlia 4) Pseudonomus

ANS: (4)

25. Given below are defined the various taxonomic aids used in taxonomy which facilitate identification and classification of organisms. Which one of the followings is wrong?

1) Botanical gardens and Zoological parks are established to conserve and preserve live plants and animals respectively.

2) Keys, floras, manuals, monographs and catalogues are useful acids for identification of plants and animals.

3) Herbarium is created to house live specimens of plant material.

4) Museums are established to keep preserved specimens of animals and plants. **ANS : (3)**

26. Choose the correct sequence representing the ploidy of Nucellus; Megaspore mother cell; Megaspore; Egg cell; Zygote; A polar nucleus of embryo sac; Secondary nucleus and Primary endosperm nucleus.

1) 2n; n; n; 2n; 3n; 2n; n; and 3n

2) n; 2n; 2n; n; 2n; n; 2n; and 2n

3) 2n; 2n; n; 2n; n; 2n; and 2n

4) 2n; 2n; n; n; 2n; n; 2n; and 3n **ANS : (4)**

27. The difference between Marasmus and Kwashiorkor is that :

1) Marasmus is a simultaneous deficiency of proteins and calories while Kwashiorkar is due to just protein deficiency unaccompanied by calorie deficiency.

2) Marasmus is a deficiency of just pretens while Kwashiorkor is due to a deficiency of both proteins and calories.

3) Marasmus is caused by deficiency of Vitamin B while Kwashiorkor is caused by the deficiency of Vitamin D.

4) Marasmus is caused by a calorie directory while Kwashiorkor is caused by protein deficiency.

ANS : (1)

28. Which of the following enzymes is not protein?

1) Lysozyme 2) Ribozyme 3) Polymerase 4) Ligase ANS : (2)

29. A complex of ribosomes attached to single strand of mRNA is known as :

1) Polypeptide 2) Okazaki fragment 3) Polymer 4) Polyribosome ANS : (4)

30. Which one of the following is not an IUD?

1) Progestasert 2) Vaults 3) Cu T 4) Multiload 375 ANS : (2)

31. In Lactational amenorrhoea, ovulation does not occur during the period of intense lactation because of :

1) High level of Prolactin
2) High level of FSH & LH
3) Surge of Estrogen
4) Stimulation of GnRH

ANS : (1)

32. Signals for the onset of parturition originate from :

1) Mother's pituitary
2) Mother's hypothalamus
3) Foetus and placenta
4) Mother's uterus

ANS : (3)

33. Which off the following symmetry is exhibited by Echiroderm Larvae?

1) Biradial 2) Bilateral 3) Radial 4) Asymmetrical **ANS : (2)**

34. Which of the following represents correct match of feature with the given set of animals?

Feature	Animals
1) Joined appendages	- Prawn, Centipede
2) Metameric Segmentation	- Earthworm, Leech, Liver fluke
3) Respiratory Sytem	-Cockroach,Tapeworm,
4) Bilateral Symmetry	- Hydra, Tapeworm, Sea urchin

ANS: (1)

35. Which of the following is a proteinaceous and water soluble photosynthetic pigment?

1) Anthocyanin 2) Chlorophyll 3) Xanthophyll 4) Phycocyanin **ANS : (4)**

36. Pollen grains can be stored for years in liquid nitrogen, maintained at temperature :

1) -196^0C 2) -120^0C 3) -20^0C 4) -70^0C **ANS : (1)**

37. Choose the false statement regarding Petromyzon:

1) It migrates to the ocean for spawning
2) The circulatory system is closed
3) The body is devoid of scales
4) Mouth is circular and lacks jaws

ANS : (1)

38. The recessive genes located on X-chromosome in humans are always:

1) Lethal 2) Sub-lethal 3) Expressed in females 4) Expressed in males **ANS : (4)**

39. Which of the following is not a ciliary movement?

1) Movement of macrophages and leucocytes.

2) Food gathering in Paramecium.
3) Removal of dust particles in trachea.
4) Passage of ova through female reproductive tract. ANS : (1)

40. Thymosin is responsible for :
1) Increased production of T-lymphocytes
2) Decreased production of T-lymphocytes
3) Inhibiting the production of antibodies.
4) Decreasing the blood calcium level in old individuals ANS : (1)

41. Which of the following pathways is involved for packaging of secretary proteins?
1) Cis face of Golgi body Trans face of Golgi bodyRER Secretary vesicles
2) RERTrans face of Golgi bodyCis face of Golgi body Secretory vesicles
3) Trans face of Golgi bodyCis face of Golgi bodyRER RER Secretory vesicles
4) RER Cis face of Golgi body TraNS FACE OF Golgi bodySecretory vesicles ANS : (4)

42. Which of the following statements is not true?
1) Primary consumers are herbivores
2) Energy pyramids of an ecosystem tend to diminish at higher trophic levels
3) A single organism can feed at several trophic levels
4) Detritivores feed at all prophic levels except the producer level ANS : (4)

43. A fat molecule is formed from :
1) One glycerol molecule and three fatty acid molecules.
2) Three glycerol molecules and one fatty acid molecule.
3) One glycerol molecule and one fatty acid molecule.
4) Three glycerol molecules and three fatty acid molecules. ANS : (3)

44. Continental drift led to disappearance of a number of South American mammals because:
1) They were outcompeted by more highly evolved animals reaching here from North America
2) Alteration of vegetation was not conducive to their survival
3) There was an outbreak of number of infectious diseases
4) Sudden change in the climatic conditions ANS : (1)

45. Which of the following statements is correct?
1) Bone marrow acts as a filter of the blood by trapping blood borne micro-organisms.
2) AIDS is caused by a group of viruses called rhinovirus.
3) Acquiredc immunity is pathogen specific.
4) The exaggerated response of the immune system to certain antigens present in the environment is called Auto-immunity. ANS : (3)

46. What is the meaning of Bt in Bt cotton?

1) Cotton produced by Biotechnology using restriction Enzyme and Ligases to resist microbial infection.
2) Cotton seeds carrying an endotoxin gener from Bacillus thuringiensis against pink boll-worm
3) Baculovirus treated cotton seeds against pin boll-worm.
4) Bigger thread of disease resistant cotton with better tensile strength. ANS : (2)

47. Select the sac fungus :

1) Mucor 2) Albugo 3) Agaricus 4) Neurospora ANS : (4)

48. Three planting helps reduce global warming as trees :

1) Can sequester CO_2
2) Can respire in light
3) Give out O_2
4) Create shade thereby cooling the ground. ANS : (1)

49. The chief function of vessels in the plant body is to :

1) Conduct water and mineral salts.
2) Eliminate excess of water.
3) Transport food materials manufactured in the leaves to other parts of the plant.
4) Store food material in the form of starch or fat. ANS : (1)

50. Flippers of Pennguins and Dolphins are the example of :

1) Divergent evolution
2) Radiation
3) Homologous structure
4) Analogous structure ANS : (4)

51. To protect and improve the quality of environment, the Government of India passed the Environment (Protection) Act in the year :

1) 1986 2) 1968 3) 1953 4) 1923 ANS : (1)

52. Select the correct option :

1) Turner's syndrome is due to trisomy and results in sterile female.
2) Klinefelter's syndrome is due to extra X chromosome and results in sterile male.
3) Phenylketonuria is X linked disease and results in accumulation of phenylpyruvic acid.
4) Down's syndrome is due to triploidy and results in mental retardation. ANS : (2)

53. Which of the following statements is correct with respect to cell cycle?

1) Nerve cells in adult human are in Go state
2) DNA content of cell remains constant during entire cell cycle.
3) A cell in G1 phase has double the amount of DNA than a cell in G2 phase
4) Each chromosome has two chromatids in G1 phase ANS : (1)

54. The type of ribosomes in same in :

1) Prokaryotes, mitochondria and chloroplasts.
2) Eukaryotic cytoplasm, mitochondria and endoplasmic reticulum.
3) Cytoplasm of eukaryotic cells, their mitochondria and chloroplasts.
4) Cytoplasm of eukaryotic cells, their chloroplasts and microbodies. ANS : (1)

55. Growth hormone Auxin was isolated by F.W. Went from tips of seedling coleoptiles of :

1) Oat 2) Rice 3) Maize 4) Wheat ANS : (1)

56. The hollow foliar structure in a wheat embryo that encloses the shoot apex and a few leaf primordial is called :

1) Hypocotyl 2) Coleoptile 3) Coleorrhiza 4) Epicotyl ANS : (2)

57. Select the correct option :

1) ZIFt involves IVF to help women who have damaged Fallopain tubes to bear a child.
2) IUI can help a woman with premature menopause to bear a child
3) GIFT involves IVF to help women who cannot produce ovum to bear a child.
4) ZIFT involves IVF to help women who cannot produce ovum to bear a child. ANS : (4)

58. The Pacinian corpuscle responds to rapid changes in :

1) Temperature 2) Light intensity 3) Gravity 4) Pressure ANS : (4)

59. Air pollution can result in Emphysema, which is :

1) An allergic reaction causing muscle spasms in the bronchial walls
2) Damage to any Lung tissue causing increase in elasticity of the air sacs
3) Chronic damage to air sacs or alveoli leading to abnormal reduction in respiratory surface area
4) Persistant inflammation and damage to the cells lining the bronchi and bronchioles ANS : (3)

60.

	Substance	Glomerular Filterate	Reabsorbed	Urine
(i)	Proteins	2g	1.9g	0.1g
(ii)	Glucose	162g	162g	0g
(iii)	Urea	54g	24g	30g
(iv)	Creatinine	1.6g	0g	1.7g

1)Glucose is completely reabsorbed 2) Urea is partially reabsorbed
3)Proteins are secreted into urine 4) Creatinine is secreted into urine
Which of the following options, in view of above statements is correct?

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

61. A large amount of about 180 L of fluid is filtered by the human kidneys per day. Which one of the following renal corpuscle featgures does not justify this?

1) **The glomerular capillaries have a higher blood pressure than the other capillaries of the body.**
2) **The efferent arteriole is wider than the afferent arteriole causing easier outflow of blood from the glomerulus.**
3) **The glomerular capillaries have a large surface area.**
4) **The glomerular capillaries are fenestrated and hence leakier than other capillaries.** **ANS : (2)**

62. Identify and select the wrong statement out of the following :

1) **The giant redwood tree sequoin, one of the tallest trees is an angiosperm.**
2) **In conifers the needle like leaves are well adapted to extremes of temperature, moisture conservation and onslaught of wind.**
3) **Roots of pines enter into a symbiotic relationship with higher fungi.**
4) **The coralloid roots in Cycas have nitrogen fixing cyanobacteria.** **ANS : (1)**

63. Which of the following is not true of organisms in the kingdom Monera?

1) **They may be autotrophic or heterotrophic in nature.**
2) **They reproduce by mitosis.**
3) **They originated at least 3.5 billion years ago.**
4) **They have prokaryotic cellular organization.** **ANS : (2)**

64. Restriction endonucleases are :

1) **Present in mammalian cell for degradation of DNA when the cell dies.**
2) **Used in genetic engineering for ligating two DNA molecules.**
3) **Used for in vitro DNA synthesis.**
4) **Synthesized by bacteria as part of their defense mechanism.** **ANS : (4)**

65. An example of flagellate protozoan is:

1) **Entamoeba** 2) **Plasmodium** 3) **Parmeocium** 4) **Trypanosom** **ANS : (4)**

66. Which of the following statements is not true?

1) **Descending limb of loop of Henle is impermeable to water.**
2) **Loop of Henle is largely responsible for concentrated urine.**
3) **Descending limb of loop of Henle is impermeable to solutes.**
4) **Distal convoluted tubule functions in K, Na homeostasis.** **ANS : (1)**

67. In the heart, as the action potential reaches the AV node from the SA mode, there is a delay of the action potential. This delay is important because :

1) **It allows ventricles to receive all the blood from the atria.**
2) **It allows right atria to receive the blood from vena cava.**
3) **It allows atria to rest.**
4) **It allows a stronger right atrial contraction.** **ANS : (1)**

68. In a hypothetical population of 100 individual having 'r'=0.5/female/year, what will be the population size in 6 years (with e=2.72) showing exponential rate of growth?

1) 2012 2) 448 3) 1218 4) 739 ANS : (1)

69. The sequential events from initial stage till climax stage in a succession are called.

1) Nudation 2) Migration 3) Ecesis 4) Sere ANS : (4)

70. Cholecystrokinin acts on :

1) Pancreas and intestine
2) Pancreas and gall bladder
3) Gastric glands and liver
4) Pancreas and duodenum ANS : (2)

71. Which technique helps to identify a bacterial or viral pathogen in a human body even when its concentration is very low and clinical symptoms are not yet visible?

1) PCR
2) Differential leucocyte count
3) ELISA
4) Total leucocyte count ANS : (1)

72. Opposite type of phyllotaxy is not present in :

1) Mint 2) Mango 3) Guava 4) Calotropis ANS : (2)

73. Select the wrong statement :

1) Three scientists independently rediscovered the Mendel's laws in 1900
2) Chromosomal Theory of Interitance was proposed by Sutton
3) Law of Mominance and Law of Independent Assortment were proposed by Mendel
4) Linkage and recombination were discovered by Sutton ANS : (4)

74. Select the incorrect option with respect to features pre4sent in three animals. ANS : (2)

	Characters	Cockroach	Earthworm	Frog
(1)	Eyes	Compound	Absent	Simple
(2)	Development	Direct	Indirect	Indirect
(3)	Blood vascular System	Open	Closed	Closed
(4)	Body surface	Dry	Moist	Moist

75. Match Column-I with column-II and select the correct option using Codes given below :

Column – I	Column – II
Cyttokinin	Stimulates closure of stomata
Ethylene	Increases stem length
Gibberellin	Promotes lateral

	shoot growth
Abscisic acid	Found in large amount in tissues undergoing senescence

Codes :

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

ANS : (2)

76. Reserved material in prokaryotic cells is stored as :

1) Polysome 2) Basal body 3) Inclusion Bodies 4) Measosome ANS : (3)

77. Which of the following type of muscle fibres will be the first one to undergo fatigue ?

1) Fast glycolytic fibres
2) Aerobic fibres
3) Slow oxidative fibres
4) Fast oxidative - glycolytic fibres ANS : (1)

78. Which of the following ecologists has tried to put price-tags on nature's life support services?

1) Paul Ehrlich 2) Robert May 3) David Tilman 4) Robert Constanza ANS : (4)

79. Name the element which is the main constituent of the ring structure of chlorophyll and helps to maintain the ribosome structure.

1) Nitrogen 2) Phosphoru 3) Calcium 4) Magnesium ANS : (4)

80. Tetradynamous stamens are characteristic of:

1) Liliaceae 2) Brassicaceae 3) Solanaceae 4) Fabaceae ANS : (2)

81. The correct sequence of involvement of cell organelles in secretion of proteins from the cell is :

1) Nucleus Endoplasmic reticulum Ribosomes Golgi apparatus Lysosomes Plasma membrane

2) Nucleus Endoplasmic reticulum Ribosomes Golgi apparatus Secretory vesicles Plasma membrane

3) Nucleus Ribosomes Endoplasmic reticulum Golgi apparatus Secretory vesicles lasma membrane

4) Nucleus Ribosomes Endoplasmic reticulum Lysosomes Plasma membrane ANS : (3)

82. Which of the following structure does not open into the genital chamber of female cockroaches?
ANS: (1) A pair of anal cerci

83. Which scientists proposed 'River popper hypothesis related…….and Ecosystems?
Ans (4) Paul elrich

84. Which ……is adhered to tympanic membrane to middle ear ANS: (2) Maleous

85. Trace ……..sperm from semiferous tubules
ANS: (2) Retitestis – vasa- efferentia - apidydimis……..

86. If the ratio …..in one strand of DNA is 1.43 ……complementary strand is
ANS: (4) 0.70

87. A couple claimed in court that a child belonged to them. Their claim can be true if the DNA fingerprint pattern of the child shows :
1) 100% similarity to father's DNA print due to large number of mitochondria in sperm.
2) 50% bands similar to father and 50% similar to mother DNA fingerprint pattern,
3) 100% similarity to both the parents' DNA fingerprint as both contribute equally to zygote formation.
4) 100% similarity to mother's DNA print because of maternal inheritance. ANS : (2)

88. Select the wrong statement:
1) RN A can splice itself and is also able to act as a catalyst
2) DNA stores genetic information
3) There is now enough evidence that essential processes like metabolism, translation and splicing evolved around RNA
4) DNA may act as a catalyst ANS : (4)

89. At what phase of meiosis homologous chromosomes are separated ?
1) Anaphase I 2) Anaphase II 3) Prophase I 4) Prophase II ANS : (1)

90. Match Column - I with Column - II and select the correct option,
Column -1 Column - II
(a) *Plasmodiitni* (i) Ringworm
(b) *Wiichereri*(ii) Amoebiasis
(c) *Entainoeba* (iii) Elephantiasis
(d) *Micrmponim* (iv) Malaria
Option :

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

ANS : (2)

91. The total number of orbital present for principle quantum number n= 4 is :
1) 16 2) 30 3) 12 4) 15 ANS : (1)

92. Among the following acids, the strongest acid is :
1) F_3CCOOH
2) Cl_3CCOH
3) $NCCH_2COOH$
4) O_2NCH_2COOH ANS : (1)

93. Match the polymer in Column-I to the monomer from Column-II and assign the correct code :

Column-I	Ccolumn – II
(Polymer)	(Monomer)

Nylon-6	Ethylene glycol, terephthallic acid
Dacron	Urea, formaldehyde
Glyptal	Ethylene glycol phthallic acid
Novolac	Phenol, formaldehyde
	Caprolactum

Code :

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

ANS : (1)

94. Which of the following statements is incorrect?

1) **Lyophilic colloids have greater affinity for solvents**
2) **Lyophilic sols are more stable than lyophobic sols**
3) **In coagulation of a negative sol, flocculating power is in the order of $Al^{3+} > Ba^{2} > NA^{+}$**
4) **In the flocculation of a positive sol, flocculating power is in the order,**

ANS: (4)

95. Which of the following hydrides has the largest bond angle?

1) H_2O 2) H_2Se 3) H_2S 4) H_2Te ANS : (1)

96. Which of the following will react faster through S_N1 mechanism?

1) **CH_2=CHCI**
2) **CH_3CH_2CI**
3) **H_2C=CH – CH_2Cl** **ANS : (3)**
4)

97. The correct statement regarding ethane conformation is:

1) **Rotation around carbon-carbon bond in ethane molecule is possible because of cylindrical symmetry of sigma *(a)* bond between carbon-carbon atoms.**
2) **Rotation around carbon-carbon bond in ethane molecule is not possible, because ethane molecule contains both sigma (cr) bond and pi (IT) bond between the carbon and carbon and ethane has very high boiling point.**
3) **Rotation around carbon-carbon bond in ethane molecule is not possible, because ethane molecule contains a pi (IT) bond between the carbon and carbon and ethane has very low melting point.**
4) **Rotation around carbon-carbon bond in ethane molecule is not possible, because ethane molecule contains both sigma *(a)* bond and pi (IT) bond between the carbon and carbon. ANS : (1)**

98. Which of the following pairs shows highest bond dissociation enthalpy among halogens and lowest bond dissociation enthalpy among hydrogen halides ?

1) Br_2,HBr 2) I_2,HI 3) F_2,HF 4) $C1_2$, HC1 ANS : (*)

99. Which of the following complex irons is not diamagnetic?

1) $[Zn(NH_3)_6]^{2+}$
2) $[Sc(H_2O)_3(NH_3)_3]^{3+}$
3) $[Ti(en)_2(NH_3)_2]^{4+}$
4) $[Cr(NH_3)_6]^{3+}$ **ANS : (4)**

100. The letter 'D' in D – glucose signifies :
1) That it is a monosaccharide
2) Configuration at the penultimate Chiral Carbon
3) Configuration at all Chiral Carbons
4) Dextrorotatory **ANS : (2)**

101. If the rate of the reaction :

Is fastest, then Z is :
1) OC_2H_5 2) $OCOCH_3$ 3) Cl 4) NH_2 **ANS : (3)**

102. For dry cleaning of clothes instead of tetrachloroethane which is carcinogen in nature, which of the following solvents can be used?
1) Liquid O_3 2) Petrol 3) Liquid CO_2 4) H_2O_2 **ANS : (3)**

103. The zinc/silver oxide cell is used in electric watches. The reaction is a following,
$Zn^{2}+2e^{-}$ Zn; E^{0} = -0.760V
$Ag_2O+H_2O+2e^{-}$ $2Ag+2OH^{-}$; E^{0} -0.311V
If F is 96,500 C Mol^{-1}, G^{0} of the cell will be :
1) 313.082 kJ mol^{-1}
2) 413.021 kJ mol^{-1}
3) 113.072 kJ mol^{-1}
4) 213.072 kJ mol^{-1} **ANS : (4)**

104. A compound fromed by Mg, Al and O, is found to have cubic close array of oxide ions in which Mg^{2+} occupying — of tetrahedral voids and Al^{3+} ions occupying the octahedral voids. The formula for the compound is :
1) $Mg\ Al_2O_4$ 2) MgAIO 3) $MgAl_4O_2$ 4) $Mg_2Al_3O_2$ **ANS : (1)**

105. Which of the following absorbs carbon dioxide and releases oxygen?
1) KOH 2) K_2O 3) CaO 4) KO_2 **ANS : (4)**

106. Of the following alcohols, the one that would react fastest with conc. HCI and anhydrous $ZnCl_2$ is :
1) 2-methylpropan-2-ol
2) 2-methylpropanol
3) Butan-1-ol
4) Butan-2-ol **ANS : (1)**

107. Of the following, the largest value of entropy at 25^{0}C and 1 atm is that of:
1) C_2H_2 2) CH_4 3) H_2 4) C_2H_6 **ANS : (4)**

108. Which of the following amino acid is not optically active?

1) Leucine 2) Glycine 3) Proline 4) Serine ANS : (2)

109. For the tetrahedral complex $[MnBr_4]^{2-}$, the spin only magnetic moment value is : [At. No. of Mn=25]

1) 4.8 2) 2.4 3) 1.7 4) 5.9 ANS : (4)

110. Which of these artificial sweetener is unstable at cooking temperature?

1) Sucralose 2) Sccharin 3) Aspartame 4) Alitame ANS : (3)

111. For the reaction $CO(g) + Cl_2(g) = Cocl_2(g)$, __is equal to :

1) √ — 2) $(RT)^2$ 3) — 4) RT ANS : (3)

112. Which off the following pair of species is not iso-structural?

1) IBr_2^- XeF_2 2) BrO_3^- XeO_3 3) ICI_4^- XeF_4 4) ClO_3^- CO ANS : (4)

113. Which one of the following ions is not tetrahedral is shape?

1) $[Cu(NH_3)_4]^{2+}$ 2) $[NiCl_4]^{2-}$ 3) NH_4^+ 4) BF_4^- ANS : (3)

114. Among halogens, the one which can oxidize water to oxygen is :

1) Fluorine 2) Iodine 3) Chlorine 4) Bromine ANS : (1)

115. Given that ^ — = . ( );

^ — = . ( ): ^ — = - ( )

the molar conductivity at infinite dilution for AgCI is :

1) 134 cm^2 mol^{-1} 2) 132 cm^2 mol^{-1} 3) 140 cm^2 mol^{-1} 4) 138 cm^2 mol^{-1} ANS : (4)

116. For the reaction, XA + YBZC,

If — = — = — then the correct statement among the following is :

1) The value of X = 2
2) The value of Y = 2
3) The value of X = Y = Z = 3
4) The value of X = Y = 3 ANS : (4)

117. Strong reducing behavior of H_3PO_2 is due to :

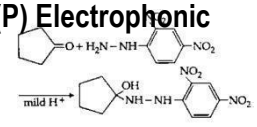
1) Presence of two – OH groups and one P-H bonds
2) Low coordination number of P
3) Low oxidation state of P
4) Presence of one – OH group and two P-H bonds ANS : (4)

118. The electron distribution in d^n coordination complexes depends on magnitude of crystal field splitting, (0) and pairing energy (P). the condition which favours formation of high spin complexes is :

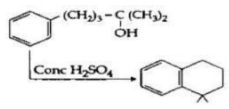
1) 0 = P 2) T_2g^4 eg^0 3) 0 > P 4) 0 < P ANS : (4)

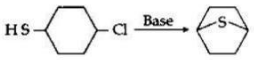
119. Match Column-I with Column-II :

(A) (P) Electrophonic



Substitution

(B)  (Q) Nucleophilic Substitution

(C)  (R) Nucleophilicc addition

1) A-R; B-P; C-Q2) A-R; BH-Q; C-P3) A-P; B-Q; C-R4) A-Q; B-R; C-P ANS : (1)

120. Which of the following statements is incorrect?

1) Strength of 'H' bond follows the order HF>H_2O> NH_3>HCI
2) Of O – C O, O = C = O, the structures, O – C O is most stable structure
3) The bond angle follows the order CH_4>NH_3>H_2O> H_2S
4) The bond order follows the order O^+_2>O_2>O^-_2>O – ANS : (2)

121. The $[Co(H_2O)_6]^{2+}$ ion has three unpaired electrons. The hybridization of Co in $[Co(H_2O)_6]^{2+}$ is :

1) sp^3d^2 2) d^2sp^3 3) sp^3 4) dsp^2 ANS : (1)

122. Consider the reaction between chlorine and nitric oxide

$Cl_2(g)+2NO(g)$ 2NOCI(g)

On doubling the concentration of both reactants, the rate of the reaction increases by a factor of 8. However, if only the concerntration of Cl_2 is doubled, the rate increases by a factor of 2. The order of this reaction with respect to NO is :

1) 2 2) 3 3) 0 4) 1 ANS : (1)

123. Amongst the following compounds the one which is most easily sulphonated is :

1) Toluene 2) Chlorobenzene 3) Benzene 4) Nitro benzene ANS : (1)

124. The standard equilibrium constant, K_p at 298 K for the reaction, $N_2(g) + 2H_2 = 2NH_3$ (g) is 5.8×10^5. The value of standard equilibrium constant, if the concentration of gases is expressed in terms of lom / L, will be :

[Given:R=0.08314 L bar K^{-1} mol^{-1}]

1) 3.56×10^8 2) 3.99×10^9 3) 5.51×10^6 4) 3.84×10^7 ANS : (1)

125. The product (P) of the following reaction

1)

2)

3)

4)

ANS (3)

126. Depressant used in the concentration of an one containing ZnS and PbS is :

1) NaCN 2) Na_2SO_4 3) Na_2CO_3 4) NaCl ANS : (1)

127. Consider the following sequence of reactions :

The substance 'B' is :

1) Benzaldehyde 2) Acetone 3) Benzene 4) Acetophenone ANS : (4)

128. The oxidation of phenol with chromic acid gives.

1) Ortho benzoquinone
2) An aldehyde
3) A simple diketone
4) A conjugated diketone

129. Under isothermal and reversible conditions, the term "free energy" in thermodynamics signifies :

1) Non-expansion work done on the system
2) Expansion work done on the system
3) Non-expansion work done by the system
4) Expansion work done by the system ANS : (3)

130. A hydrocarbon contains 85.7% C. If 42 mg of the compound contains 3.01×10^{20} molecules, the molecular formula of the compound will be :

1) $C_{12}H_{24}$ 2) C_2H_4 3) C_3H_6 4) C_6H_{12} ANS : (4)

131. The tendency to form monovalent compounds among the Group 13 elements is correctly exhibited in :

1) TI In < Ga < al < B
2) B AI Ga In TI
3) B < AI < Ga < In < TI
4) T < In < Ga < Al < B ANS : (3)

132. Which of the following lanthanoids shows +4 oxidation state to acquire noble gas configuration? (At. Nos. La=57, Ce=58, Eu = 63 and Yb = 70)

1) La 2) Eu 3) Ce 4) Yb ANS : (3)

133. The reaction :

is

Known as :

1) **Gattermann reaction**
2) **Balz Schiemann reaction**
3) **Sandmeyers reaction**
4) **Finkelstein reaction** **ANS : (1)**

134. Toluene is the vapour phase is in equilibrium with a solution of benzene and toluence having mole fraction of toluene 0.50. If vapour pressure of pure benzene is 119 torr and that to toluence is 37.0 torr at the same temperature, mole fraction of toluence in vapor phase will be

1) 0.506 2) 0.325 3) 0.462 4) 0.237 ANS : (4)

135. Consider the following reaction for which the change in enthalpy is positive. 2A(g) + B (g) = C(g) + D(g)
Which of the following will not affect the equilibrium?

1) **Change in temperature**
2) **Presencfe of catalyst**
3) **Change in concentration of reactants**
4) **Change in pressure** **ANS : (2)**

136. An electron moves straight inside a charged parallel plate capacitor of uniform charge density. The space between the plates is filled with uniform magnetic field of intensity B, as shown in the figure, Neglecting effect of gravity, the time of straight line motion of the electron in the capacitor is :

1) **2)** **3)** **4)** **ANS : (2)**

137. A wall consists of alternating blocks of length 'd' and coefficient of thermal conductivity K_1 and K_2 respectively as shown in figure. The cross sectional area of the blocks are the same. The equivalent coefficient of thermal conductivity of the wall between left and right is :

1) **2)** **3)** **4)** **ANS : (2)**

138. One mole of a gas obeying the equation of state P(V-b) = RT is made to expand from a state with coordinates (P_1, V_1) to a state with (P_2, V_2) along a process that is depicted by a straight line on a P – V diagram. Then, the work done is given by :

1) **$\frac{1}{2}(P_1 + P_2)(V_2 - V_1 + 2b)$**
2) **$\frac{1}{2}(P_2 - P_1)(V_2 + V_1 + 2b)$**
3) **$\frac{1}{2}(P_1 + P_2)(V_2 - V_1)$**
4) **$\frac{1}{2}(P_2 + P_2)(V_2 - V_1)$** **ANS : (3)**

139. A parallel-plate capacitor is to be designed, using a dielectric of dielectric constant 5, so as to have a dielectric strength of 10^9 Vm^{-1}. If the voltage rating of the capacitor is 12kV, the minimum area of each plate required to have a capacitance of 80 pF is :

1) 12.5 x 10^{-5} m^2 2) 10.5 x 10^{-5} m^2 3) 21.7 x 10^{-5} m^2 4) 25.0 x 10^{-5} m^2 ANS : (3)

140. In an experiment of photoelectric effect the stopping potential was measured to be V_1 and V_2 with incident light of wavelength /2, respectively. The relation between V_1 and V_2 is :

1) $V_2 = 2V_1$ 2) $V_2 > 2V_1$ 3) $V_2 < V_1$ 4) $V_1 < V_2 < V_1$ ANS : (2)

141. A bulb connected in series with an air-co\\red solenoid is lit by an a.c. source. If a soft iron core is introduced in the solenoid.

1) The bulb will become dimmer.
2) The bulb stops glowing.
3) The bulb will glow brighter.
4) There is no change in glow of bulb. ANS : (1)

142. The angle between

1) 45^0 2) 60^0 3) 90^0 4) 120^0 ANS : (3)

143. If the longest wavelength in the ultraviolet region of hydrogen spectrum is $_0$ then the shortest wavelength in its infrared region is:

1) __ 2) __ 3) __ 4) __ ANS : (1)

144. A body starts moving unidirectionally under the influence of a source of constant power. Which one of the graph correctly shows the variation of displacement(s) with time(t)? ANS :

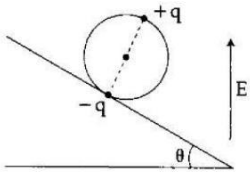
1)

2)

3)

4)

145.



A wheel having mass m has charges +q and – q on diametrically opposite points. It remains in equilibrium on a rough inclined plane in the presence of a vertical electric field E. Then value of E is.

1)——— 2)——— 3)— 4)— ANS : (4)

146. In certain planetary system, it is observed that one of the celestial bodies having a surface temperature of 200 K, emits radiation of maximum intensity near the wavelength 12 m. the surface temperature of a nearby star which emits light of maximum intensity at a wavelength = 4800 A, is :

1) 10000 K 2) 7500 K 3) 5000 K 4) 2500 K ANS : (3)

147. A girl jumps down from a moving bus, along the direction of motion of the bus, tilting slightly forward. She falls on (a) a sheet of ice (b) a patch of glue.

1) In case (a) she falls forward and in case (b) she falls backward.
2) In case (a) she falls backward and in case (b) she falls backward.
3) In both cases (a) and (b) she falls forward.
4) In both cases (a) and (b) she falls backward. ANS : (3)

148. The rotational kinetic energy of a solid sphere of mass 3 Kg and radius 0.2 m rolling down an inclined plane of height 7 m is :

1) 70J 2) 42J 3) 60J 4) 36J ANS : (3)

149. The volume of 1 mole of an ideal gas with the adiabatic exponent is changed according to the relation V = where b = constant. The amount of heat absorbed by the gas in the process if the temperature is increased by T will be :

1) ___ ___ 3)___ ___ ANS : (4)

150. A cell of emf E and internal resistance 'r' is connected to a variable external resistor 'R'. The graph which gives the terminal voltage of cell 'V' with respect to R is :

ANS: (3)

151. Two coherent sources of intensity ratio interfere. The value f is :

1) 2) 3) 4) ANS : (3)

152. A ball of mass 1 kg is thrown vertically upwards and returns to the ground after 3 seconds. Another ball, thrown at 60^0 with vertical also stays in air for the same time before it touches the ground. The ratio of the two heights are :

1) 2:1 2) 1:3 3) 1:2 4) 1:1 ANS : (4)

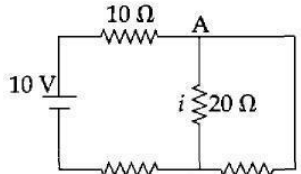
153. A parallel beam of light of wavelength is incident normally on a single slit of width d. Diffraction bands are obtained on a screen placed at a distance D from the slit. The second dark band from the central bright band will be at a distance given by :

1) 2) 3) dD 4) ANS : (2)

154. From the circuit of the following Logic gates, the basic logic gate obtained is :

1) NOT gate 2) NAND gate 3) AND gate 4) OR gate ANS : (2)

155. In the electrical circuit shown in the figure, the current I through the side AB is :



1) __A 2) __A 3) __A 4) _A ANS : (2)

156. A satellite of mass m is in circular orbit of radius 2 R_E about earth (mass of earth M_E, radius of earth R_E). How much additional energy is required to transfer the satellite to an orbit of radius $9R_E$?

1) ——— 2) ——— 3) ——— 4) ——— ANS : (3)

157. If the mass of neutron is 1.7×10^{-27} kg, then the de-Broglie wavelength of neutron of energy 3 eV is : ($h=6.6 \times 10^{-34}$ Js)

1) 1.4×10^{-10} m 2) 1.4×10^{-11} m 3) 1.6×10^{-10} m 4) 1.65×10^{-11} m ANS : (4)

158. Due to Doppler effect, the shift in wavelength observed is 0.1 A, for a star producing a wavelength 6000 A. The velocity of recession of the star will be :

1) 5 km s^{-1} 2) 20 km s^{-1} 3) 2.5 km s^{-1} 4) 10 km s^{-1} ANS : (1)

159. A circular coil of radius 10 cm, 500 turns and resistance 2 is placed with its plane, perpendicular to the horizontal component of the earth's magnetic field. It is rotated about its vertical diameter through 180^0 in 0.25 s. The induced e.m.f. in the coil is (Take $H_E=3.0 \times 10^{-5}$ T) :

1) 3.8×10^{-3} V 2) 6.6×10^{-4} V 3) 1.4×10^{-2} V 4) 2.6×10^{-2} V ANS : (1)

160. Inside a parallel plate capacitor the electric field E varies with time as t^2. The variation of induced magnetic field with time is given by : ANS : (1)

1) t 2) t^2 3) no variation 4) t^3

161. a person has near point at 60 cm. The focal length of spectacles lenses to read at 22 cm having glasses separated 2 cm from the eyes, is :

1) 30 cm 2) 40 cm 3) 10 cm 4) 20 cm ANS : (1)

162. The energy liberated per nuclear fission is 200 MeV. If 20^{20} fissions occur per second the amount of power produced will be :

1) 5×10^{11} W 2) 2×10^{22} W 3) 32×10^8 W 4) 16×10^8 W ANS : (3)

163. A thin uniform rod of mass 'M' and length 'L' is rotating ab out a perpendicular axis passing through its centre with a constant angular velocity ' '. Two objects each of mass are attached gently to the two ends of the rod. The rod will now rotate with an angular velocity of :

1)– 2)– 3)– 4)– ANS : (2)

164. A body initially at rest, breaks up into two pieces of masses 2 M and 3 M respectively, together having a total kinetic energy E. The piece of mass 2M, after breaking up, has a kinetic energy :

1) ¯ 2) ¯ 3) ¯ 4) ¯ ANS : (1)

165. Imagine earth to be a solid sphere of mass M and radius R. If the value of acceleration due to gravity at a depth 'd' below earth's surface is same as its value at a height 'h' above its surface and equal to (where g is the value of acceleration due to gravity on the surface of earth), the ratio of will be :

1)– 2) 1 3)– 4)– ANS : (3)

166. If the angle of a prism is 60^0 and angle of minimum deviation is 40^0, then the angle of refraction will be: ANS : (3)

1) 3_0 2) 4^0 3) 30^0 4) 20^0

167. A uniform magnetic field of 0.36 T is established along the positive Z-direction. A rectangular loop in XY plane of sides 10 cm and 5 cm carries a current of I=12 A as shown. The torque on the loop is :

1) -1.8×10^{-2} i Nm
2) $+1.8 \times 10^{-2}$ I Nm
3) -1.8×10^{2} j Nm ANS : (4)
4) Zero

168. A light beam is incident on a denser medium whose refractive index is 1.414 at an angle of incidence 45^0. Find the ratio of width of refracted beam in a medium to the width of the incident beam in air.

1) ANS : (2)

169. When the temperature of a gas is raised from 30^0C to 90^0C, the percentage increase in the r.m.s. velocity of the molecules will be :

1) 30% 2) 60% 3) 10% 4) 15% ANS : (3)

170. Two open organ pipes of fundamental frequencies n_1 and n_2 are joined in series. The fundamental frequency of the new pipe so obtained will be :

1) 2) (n_1+n_2) 3) ANS : (1)

171. A student performs an experiment of measuring the thickness of a slab with a vernier celliper whose 50 divisions of the vernier scale are equal to 49 divisions of the main scale. He noted that zero of the vernier scale is between 7.00 cm and 7.05 cm mark off the main scale and 23^{rd} division of the vernier scale exactly coincides with the main scale. The measured value of the thickness of the given slab using the caliper will be :

1) 7.073 cm 2) 7.73 cm 3) 7.23 cm 4) 7.023 cm ANS : (4)

172. The density of a metal at normal pressure is p. Its density when it is subjected to an excess pressure p is p. If B is Bulk modules of the metal, the ratio of _ is :

1) ___ 2) + ___ 3) ___ 4) + _ ANS : (3)

173. A molecule of a substance has permanent dipole moment p. a mole of this substance is polarized by applying a strong electrostatic field E. The direction of the field is suddenly changed by an angle of 60^0. If N is the Avogadro's number the amount of work done by the field is :

1) –NpE 2) 2NpE 3) ½ NpE 4) NpE ANS : (3)

174. A metal block of base area 0.2 m^2 ius connected to a 0.02 kg mass via a string that passes over an ideal pulley as shown in figure. A liquid film of thickness 0.6 mm is placed between the block and the table. When released the block moves to the right with a constant speed of 0.17 m/s. The co-efficient of viscosity of the liquid is : ANS : (3)

1) 3.45 x 10^2 Pa – s 2) 3.45 x 10^3 Pa – s 3) 3.45 x 10^{-2} Pa – s 4) 3.45 x 10^{-3} Pa – s

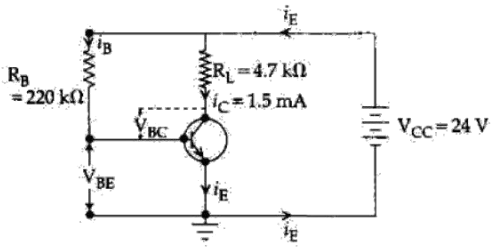
175. A cyclist on a level road takes a sharp circular turn of a radius 2m ($g=10ms^{-2}$). If the coefficient of static friction between the cycle tyres and the road is 0.2, at which of the following speeds will the cyclist not skid while taking the turn?

1) 10.8 km h^{-1} 2) 14.4 km h^{-1} 3) 7.2 km h^{-1} 4) 9 km h^{-1} ANS : (4)

176. Two reasons for using soft iron as the material for electromagnets.

1) High permeability and high retenttivity
2) Low permeability and high retenttivity
3) High permeability and low retentivity
4) Low permeability and low retentivity ANS : (3)

177. A common emitter amplifier circuit is shown in the figure below. For the transistor used in the circuit the current amplification factor, $_{dc}=100.$ Other parameters are mentioned in the figure.



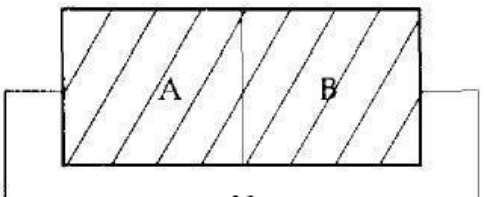
We find that :

1) **V_{BE}=21.5V, V_{BC}=-12.75 V and amplifier is working.**
2) **V_{BE}=18.2V, V_{BC}=-3.45 V and amplifier is working.**
3) **V_{BE}=18.5V, V_{BC}=+2.85V and amplifier is working.**
4) **V_{BE}=20.7V, V_{BC}=+3.75V and amplifier is working.** **ANS : (4)**

178. A metal rod of 1m length, is dropped exact vertically on to a hard metal floor. With an oscilloscope, it is determined that the impact produces a longitudinal wave of 1.2 kHz frequency. The speed of sound in the metal rod is :

1) 1200 m/s 2) 600 m/s 3) 2400 m/s 4) 1800 m/s ANS : (3)

179. Two sides of a semiconductor germanium crystal a and B are doped with arsenic and indium, respectively. They are connected to a battery as show in figure.



The correct graph between current and voltage for the arrangement is:

1)

2)

3)

4)

ANS : (2)

180. The angular momentum of a rigid body of mass m about an axis is n times the liner momentum (P) of the body. Total kinetic energy of the rigid body is :

1) n^2p^2 x 2m **2)** **3)** **4)** **ANS : (*)**

***None of options given is found correctly**