41. **Assertion (A) :** "The Biological Species" concept helps us to ask how species are formed.
Reason (R) : **The** concept of Biological species focuses our attention on the question of how reproductive isolation comes about.
The correct answer is :
(1) Both A and R are correct, but R does not explain A
(2) Both A and R are not true
(3) Only A is true but R is not correct
(4) Both A and R are correct and R is a true explanation to A

42. In ophiuroidea branched arms are seen in :
(1) Gorgonocephalus (2) Clypeaster
(3) Salmacis (4) Gorgonia

43. Note the following :
(a) It is a fresh water, metamerically segmented protostome.
(b) The c1itellum is absent.
(c) It is unisexual.
(d) Its larval form is Trochophore.
(e) The nervous system is found in the epidermis.
Which of the above is true of "Paddle worm" ?
(1) a, b and e (2) b, c and e (3) b, c and d (4) c, d and e

44. Match the following:

List-I	**List-II**
(A) Green glands	(I) Scolopendra
(B) Amphids and Phasmids	(II) Respiratory organ
(C) Ctenidia	(III) Shell protein
(D) Poison claw	(IV) Excretory organs
(E) Concholin	(V) Sense organs

The correct match is :

	A	B	C	D	E
(1)	IV	V	II	I	III
(2)	I	III	IV	V	II
(3)	II	IV	V	III	I
(4)	III	IV	V	II	I

45. The type of connective tissue that is associated with the Umbilical cord is :
(1) Areolar connective tissue (2) Jelly-like connective tissue
(3) Adipose connective tissue (4) Reticular connective tissue

46. Note the following:
(a) It forms the lining of the cavities of alveoli of the lungs.
(b) It forms the lining of wet surfaces like buccal cavity and oesophagus.
(c) It occurs in the ducts of sweat glands.
(d) It forms the lining of salivary glands and sweat glands.
(e) It is a loose connective tissue.
Which of the above are associated with simple epithelial tissue ?
(1) a and d (2) band c (3) c and a (4) d and e

47. In vorticella, the total number of micronuclei formed at the end of prezygotic nuclear division in female gamont is:
(1) 4 (2) 6 (3) 8 (4)5

48. Which stage in the life cycle of Taenia solium, infects the intermediate host?
(1) Hexacanth larva (2) Oncosphere

(3) Cysticercus larva (4) Miracidium

49. ***Assertion (A) :*** Predation is an interspecific interaction with a feeding strategy.
Reason (R) : Predation. and their prey maintain fairly stable population through time and rarely· one population become abundant or scarce.
The correct answer is :
(1) Both A and R are not correct
(2) Both A and R are correct and R is a correct explanation of A
(3) Only A is correct, R is not correct
(4) Both A and Rare correct, but R is not a correct explanation of A

50. In pheretima, gizzard, buccal cavity, pharynx, oesophagus, pharyngea1 nephridia receive the blood from thisblood vessel :
(1) Supra oesophageal (2) Lateral oesophageal
(3) Dorsal Blood (4) Subneural

51. The location of lymph glands in Pheretima is :
(1) 4th, 5th and 6th segments (2) 10th to 20th segments
(3) 26th to the last segments (4) 13th segment

52. Note the following:
(a) Fenestra (b) Pedical
(c) Lacinia (d) Flagellum
(e) Galea (f) Mentum
(g) Palpifer (h) Cardo
(i) Glossa
Which of the above found in the first pair of maxillae in the case of Cockroach?
(1) c,e, g and h (2) a, c, e and I (3) a, f, g and i (4) b, e, g and i

53. Note the following:
An insect whose mouthparts are biting and chewing type in the larval condition, while they are siphoning type in the adult and this insect gives an economically important substance during yet another stage of its development.
The insect is :
(1) Anopheles (2) Laccifer (3) Bombyx (4) Apis

54. Note the following:
(a) Monocytes (b) Trophocytes
(c) Lymphocytes (d) Mycetocytes
(e) Leucocytes (f) Oenocytes
(g) Urate cells
Which of the above are fat cells in Peripanata ?
(1) a, c, e and h (2) b, d, f and g (3) c, e, f and g (4) a, c, e and f

55. In cockroach which of the following is the principal motor centre:
(1) Supraoesophageal ganglia (2) Suboesophageal ganglia
(3) Metathoracic ganglia (4) Abdominal ganglia

56. The growth of a population without limit at its maximal rate and also that, rates of immigration and emigration are equal, then it is called:
(1) Carrying capacity (2) Biotic potential
(3) Positive growth (4) Negative growth

57. The state of Gujarat has river, desert, forest and lake ecosystems, thus exhibiting a diversity of life. Which measure do you use to denote total diversity in such a case :
(1) α (Alpha) (2) β (Beta) (3) γ (Gamma) (4) δ(Delta)

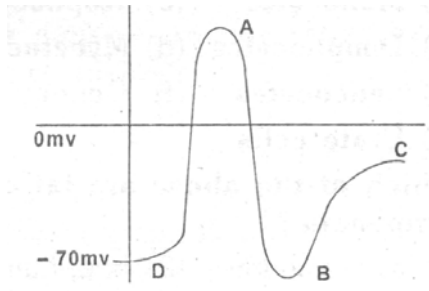
58. The pair of Amphibians found in Indian Peninsula is :
(1) Amphiuma (2) Tylototriton and Ichthyophis
(3) Hyla and Ambystoma (4) Psittacus and Apteryx

59. In coelomates the problem of diffusion of food from gut to tissues is solved by:

(1) The presence of coelomic fluid
(2) Churning the food within the body cavity
(3) Developing a circuilatory system
(4) Developing gut associated glands

60. Ovoviviparity is seen in this caecilian
(1) Wuchereria (2) Typhlonectus (3) Ichthyophis (4) Uraeotyphlus

61



Identify the region where all Na^+ channels are reactivated but closed and all K^+ channels are closed.
(1) D (2) C (3) B (4)A

62. A hormone secreted by the endocrinal cells of duodenal mucosa which influences the release of pancreatic juice is :
(1) Relaxin (2) Cholecystokinin (3) Secretin (4) Progesteron

63. With the help of the below given, identify the correct sequence, that leads to the formation of blood clot:
(a) Blood clot (b) Injury
(c) Factor II (d) Factor III
(e) Factor IV (f) Fibrinogen
(g) Thrombin
(1) b →c → d → f → g→ a
(2) b→c→g→f→a d ↑ $\xleftarrow{+e}$
(3) d→b→c→g→f→a
↑ e^+
(4) b→d→c→f→g→a
↑ e^+

64. Left shift of oxyhaemoglobin curve is noticed under :
(1) Normal temperature and pH (2) Low temperature and high pH
(3) Low pH and high temperature (4) Low pH and low temperature

65. Hypochromic microcytic anaemia and Leucopenia are caused by the deficiency of respectively
(1) Pyridoxine and Riboflavin (2) Pyridoxine and Folacin
(3) Biotin and Folacin (4) Biotin and Cyanocobalamin

66. Which of the following given bones divide olfactory capsules in rabbit into left and right halves
(a) nasals (b) premaxillae (c) maxillae (d) mesethmoid
(1) a (2) d (3) b (4)c

67. The glycoprotein layer between oocytes and cuboidal cells in ovary of rabbit is :
(1) Membrana granulose (2) Zona pellucida
(3) Corpus luteum (4) Zona reticulata

68. During the muscle contraction which zone decreases :
(1) I zone (2) Z zone (3) H zone (4) M zone

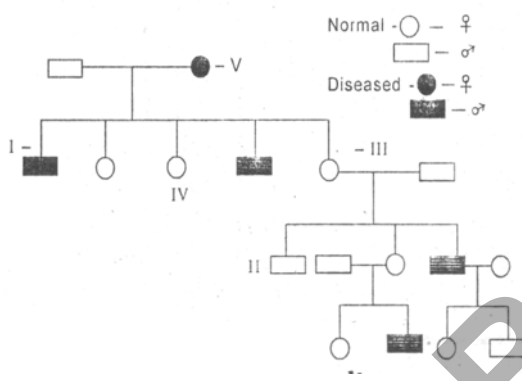
69. Note the following:
(a) Skin (b) Phagocytes
(c) B-cells (d) Inflammation

(e) Antibodies (f) T-cells
(g) Fever (h) Antimicrobial proteins
(i). NK-cells (j) Secretions
Identify the factors involved in 2nd line of defense
(1) b, d, g and i (2) b, c, e and I (3) d, f, h and j (4) c, e, g and h

70. The urine is :
(1) Hypotonic to blood and Isotonic to medullary fluid
(2) Hypertonic to blood and Isotonic to medullary fluid
(3) Isotonic to blood and Hypotonic to medullary fluid
(4) Isotonic to blood and Hypertonic to medullary fluid

71. The extinct reptiles without temporal fossae belong to :
(1) Chelonia (2) Synaptosauria (3) Ichthyopterygia (4) Cotylosauria

72.



In the above given pedigree, assume that no outsider marrying in, carry a disease. Write the genotypes of II and III.
(1) All X^dy (2) X^DY and X^DX^d
(3) X^dX X^dy and X^dy^D (4) X^dX^d and X^dy

73. Match the following:

List·I	**List-II**
(A) XX· XO, method of sex determination	(I) $\overset{o}{+}$ Heterogamtic
(B) 1.5 X/A ratio	(II) Turner's syndrome
(C) Karyotype 45	(III) Hemiptera
(D) ZW-ZZ method of sex determination	(IV) Metafemale

The correct match is :

	A	B	C	D
(1)	I	IV	II	III
(2)	III	IV	II	I
(3)	IV	I	II	III
(4)	I	IV	II	III

74. A woman with blood group 'O' has a child with blood group 'O'. She claims that a man with blood group 'N as the father of her child. What would be the genotype of the father, if her claim is right?
(1) I^O I^O (2) I^AI^B (3) I^A I^O (4) I^BI^O

75. A specific nucleotide sequence to which RNA polymerase attaches to initiate transcription of m-RNA from a gene:
(1) Promoter gene (2) Structural gene (3) Operon (4) Regulator gene

76. A selection that acts to eliminate one .extreme from an array of phenotypes is :
(1) Disruptive (2) Directional (3) Stabilizing (4) Coevolution

77. **Assertion (A) :** The Theory of Survival of the Fittest is widely misunderstood.

Reason (R) : Evolution does not always increase the chances of a species survival and species do not survive when such chances happen rapidly.

The correct answer is :

(1) Both A and R are true, but R does not explain A

(2) Only A is true, but R cannot explain A

(3) Both A and R are true and R is a true explanation of A

(4) Both A and R are not true

78. In poultry first Deworming is usually done around this age :

(1) 4 weeks (2) 8 weeks (3) 12 weeks (4) 16 weeks

79. The sequence of Nitrogen Bases(Triplet) on t-RNA is :

(1) Anticodon (2) Terminating codon

(3) Degenerate codon (4) Initiating codon

80. Match the following:

List-I	**List-II** tion between
(A) Sandwich ELISA	(I) Three dimensional image
(B) QRS Complex	(II) Substrate linked antibody
(C) Allograft	(III) Ventricular depolarisation
(D) CT Scan	(IV) Transplantation between non-identical individual

The correct match is :

	A	B	C	D
(1)	II	III	IV	I
(2)	II	IV	III	I
(3)	I	II	IV	III
(4)	II	III	IV	I

ANSWERS

(41) 4	(42) 1	(43) 3	(44) 1	(45) 2
(46) 1	(47) Del	(48) 2	(49) 2	(50) 3
(51) 3	(52) 1	(53) 3	(54) 2	(55) 2
(56) 2	(57) 3	(58) 2	(59) 3	(60) 2
(61) 2	(62) 2	(63) 2	(64) 2	(65) 2
(66) 2	(67) 2	(68) 3	(69) 1	(70) 2
(71) 4	(72) 2	(73) 2	(74) 3	(75) 1
(76) 2	(77) 3	(78) 2	(79) 1	(80) 1 or 4