BIOLOGY

Q.No.				
01	D	C	D	C
02	B	C	B	D
03	C	B	A	A
04	B	A	C	B
05	D	C	B	C
06	A	D	C	C
07	C	B	B	D
08	D	C	D	D
09	B	D	C	D
10	A	C	D	B
11	C	B	D	C
12	C	C	A	C
13	B	B	C	A
14	B	D	C	A
15	D	C	A	D
16	D	B	D	B
17	D	D	D	D
18	C	D	B	C
19	B	D	C	A
20	D	B	B	C
21	D	C	D	D
22	D	B	A	C
23	C	C	C	C
24	D	A	C	D
25	C	C	B	C
26	A	A	D	D
27	D	C	C	D
28	C	B	C	D
29	C	A	D	C
30	B	D	C	
31	B	C	B	
32	A	D	C	C
33	C	B	B	C
34	D	D	D	D
35	C	A	A	
36	C	D	D	C
37	A	C	D	B
38	B	D	B	D
39	D	A	D	B
40	C	B	C	B
41	A		C	C
42	C	C	D	A
43	C	D	D	C
44	D		C	D
45		A	B	D
46	A	C	B	B
47	C	B	C	C
48	C	D	A	A
9	B	D	C	B
5	C	C	A	D
51	C	C	C	A
	B	C	C	B
53	C	C	C	D
54	D	A	B	C
55	D	D	C	B
56	C	C	C	C
57	D	D	A	C
58	C	C	C	A
59	C	C	D	C
60	A	B	D	C
61	A	D	B	B
62	B	C	B	A
63	B	B	C	B
64	B	A	D	A
65	B	B	C	D
66	A	D	B	C
67	B	B	A	B
68	D	B	B	D
69	C	B	B	B
70	D	C	B	B
71	A	D	A	B
72	B	A	D	B
73	C	A	B	A
74	B	B	A	C
75	D	B	D	D
76	A,B,C	A,B,D	A,B,D	B,C,D
77	A,B,D	B,C,D	A,B,D	B,C,D
78	B,C,D	A,B,D	A,B,C	A,B,D
79	A,B,D	B,C,D	B,C,D	A,B,C
80	B,C,D	A,B,C	B,C,D	A,B,D

ANSWERS & HINTS
for
WBJEEM - 2014
SUB : BIOLOGY

CATEGORY - I

Q.1 to Q.60 carry one mark each, for which only one option is correct. Any wrong answer will lead to deduction of 1/3 mark.

1. One molecule of triglyceride is produced using
   (A) One fatty acid and one glycerol
   (B) One fatty acid and three glycerols
   (C) Three fatty acids and three glycerols
   (D) Three fatty acids and one glycerol

   Ans : (D)

   Hints : One molecule of triglyceride is produced by three molecules of fatty acids and one molecule of glycerol.

2. Glutenin is an important protein in
   (A) Potato (B) Wheat (C) Soybean (D) Spinach

   Ans : (B)

   Hints : Glutenin is a storage protein present in wheat

3. Which one of the followings is enriched with a non-reducing sugar ?
   (A) Grapes
   (B) Germinating barley grains
   (C) Table sugar
   (D) Mother's milk

   Ans : (C)

   Hints : Table sugar is sucrose which is a non-reducing sugar.

4. Select the CORRECT statem nt elated o mitosis
   (A) Amount of DNA in the par nt cell is first halved and then distributed into two daughter cells
   (B) Amount of DNA in the parent cell is first doubled and then distributed into two daughter cells
   (C) Amount of DNA in the parent cell is first halved and then distributed into four daughter cells
   (D) Amount of DNA in the parent cell is first doubled and then distributed into four daughter cells

   Ans : (B)

5. The frequency of crossing-over occurring between two genes located on the same chromosome depends on
   (A) Length of the chromosome
   (B) Position of the centromere
   (C) Activities of two genes
   (D) Distance between two genes

   Ans : (D)

   Hints : Frequency of crossing-over is directly proportional to the distance between two genes.

6. Chlorophyll molecules are located in the
   (A) Thylakoid membrane
   (B) Thylakoid lumen
   (C) Stroma
   (D) Inner chloroplast membrane

   Ans : (A)

7. The primary cell wall is mainly made up of

(A) Lignin (B) Pectin (C) Cellulose (D) Protein

Ans : (C)

8. Which of the folloiwng statements is wrong for sucrose ?

(A) It is a disaccharide (B) It is a non-reducing sugar

(C) It accumulates in the cytoplasm (D) It is comprised of maltose and fructose

Ans : (D)

Hints : Sucrose is a disaccharide composed of glucose and fructose.

9. Which of the followings is always ABSENT in prokaryotic cells ?

(A) Ribosome (B) Mitochondria (C) DNA (D) Cell wall

Ans : (B)

10. Which of the following tissues provide maximum mechanical support to plant organs ?

(A) Sclerenchyma (B) Collenchyma (C) Parenchyma (D) Aerenchyma

Ans : (A)

Hints : It is thick walled, lignified dead mechanical tissue

11. The Respiratory Quotient (RQ) of glucose is

(A) 0.5 (B) 0.7 (C) 1.0 (D) 1.5

Ans : (C)

12. Cross-pollination through insect agent is called

(A) Anthropophily (B) Malacophily (C) Entomophily (D) Ornithophily

Ans : (C)

13. Cleistogamous flowers are

(A) Bisexual flowers which remain opened (B) Bisexual flowers which remain closed

(C) Open female flower (D) Open male flower

Ans : (B)

14. Which one of the following is a g owth regulator produced by plants ?

(A) Naphthalene acetic acid (B) Zeatin

(C) 2,4-Dichlorophenoxyacetic acid (D) Benzyl aminopurine

Ans : (B)

Hints : Zeatin belongs to the family of natural plant growth regulator called cytokinin.

15. In apple, the edible portion is

(A) Mesocarp (B) Epicarp (C) Endocarp (D) Thalamus

Ans : (D)

16. Anish is having colour-blindness and married to Sheela, who is not colour-blind. What is the chance that their son will have the disease ?

(A) 100% (B) 50% (C) 25% (D) 0%

Ans : (D)

Hints : According to the question, Sheela is not colour blind so, her genotype is XX and the colour blind Anish has the genotype $X^{C}Y$.

17. Insect pest resistant Bt-cotton plant was developed using
(A) Somaclonal variation (B) Micropropagation (C) Somatic hybridization (D) Transgenic technology
Ans : (D)
Hints : Bt cotton was produced by transgenic technology in which *cry* gene was introduced into cotton plant genome. This gene was obtained form *Bacillus thuringiensis*.

18. In which one of the followings, expenditure of energy is required ?
(A) Osmosis (B) Diffusion (C) Active transport (D) Passive transport
Ans : (C)
Hints : Active transport requires expenditure of energy since, it occurs against the concentration gradient.

19. Emasculation ensures cross-pollination in
(A) Staminate flower (B) Bisexual flower (C) Neuter flower (D) Pistillate flower
Ans : (B)

20. The protein component of a holoenzyme is known as
(A) Coenzyme (B) Cofactor (C) Prosthetic group (D) Apoenzyme
Ans : (D)
Hints : Protein part of a conjugated or holoenzyme is called as apoenzyme. Non-protein part is called as co-factor.

21. Pseudopodia are produced by
(A) Plasma Cell (B) Mast Cell
(C) Adipose Cell (D) Fibroblast Cell
Ans : (D)
Hints : Protoplasmic processes of fibroplast can act as pseudopdia supported by axial filaments. They are lamellipodia.

22. Formation of polysome does not require
(A) rRNA (B) mRNA (C) tRNA (D) snRNA
Ans : (D)

23. K_m is
(A) Product (B) Enzyme (C) Constant (D) Unit
Ans : (C)
Hints : K_m is Michaelis-Menten constant. It indicat s substrate concentration at which rate of reaction is half of the maximum velocity

24. Proteins helping in Kinetocore forma ion of yeast are
(A) CBF2 and Kar^3 P (B) CBF2 and CBF3
(C) CBF3 and Kar^3 P (D) CBF2, CBF3 and Kar^3P
Ans : (D)

25. Juvenile hormone in insects is released from
(A) Protocerebrum (B) Corpora Cardiaca (C) Corpora Allata (D) Thoracic Gland
Ans : (C)
Hints : Juvenile hormone is produced by corpora allata. It ensures the retention of juvenile characters

26. Genes which are located only in the X-Chromosome are known as
(A) Epistasis genes (B) Holandric genes (C) Operator genes (D) Antiepistasis genes
Ans : (A)
Hints : Epistasis genes is the most probable option though none of the options seem appropriate.
[According to Barr Body concept (applicable only for X-chromosomes) genes present on the Barr body (inactive X-chromosome) are at times hypostatic due to presence of epistatic genes on the active X-chromosome].
* Genes which are located on X-chromosome only are called **hologynic genes** and those found on Y-chromosome only are called **holandric genes**.

27. Industrial Melanism is an
(A) Effect of industrial pollution (B) Effect of mutation
(C) Evidence of survival of fittest (D) Evidence in favour of Natural Selection
Ans : (D)
Hints : Industrial melanism is an evidence of Natural Selection but industrial pollution acted as the selective factor

28. The concept of Hot-Spot was first introduced by
(A) Mayer (B) Simpson (C) Myers (D) David
Ans : (C)

29. With the rise of water temperature, dissolved oxygen
(A) Remains unchanged (B) Increases in amount
(C) Decreases in amount (D) Is more available to the aquatic organisms
Ans : (C)

30. Intermediate host of malarial parasite is
(A) Pig (B) Man (C) Mosquito (D) Larva of Mosquito
Ans : (B)
Hints : Human is considered as the intermediate host or secondary host because the parasite performs its asexual cycle within human in medicine. In zoology or biological science mosquito is the intermediate host

31. Which codon is not an indicator of completion of protein synthesis ?
(A) UAG (B) AUG (C) UAA (D) UGA
Ans : (B)
Hints : Since, AUG only initiates protein synthesis.

32. 'Kyoto Protocol' is a multination international treaty for
(A) Phasing out green house gases (B) Controlli g ozone destroying substances
(C) Management of hazardous wastes (D) Conse vatio of biodiversity
Ans : (A)

33. The objective of 'Ramsar Convention' was
(A) Forest conservation (B) Wildlife conservation
(C) Wetland conservation (D) Biodiversity conservation
Ans : (C)
Hints : Signed–2nd Feb 1971 (Iran) & effective from 21st December, 1975

34. Which of the following human parasites requi e mos uito to complete their life-cycle ?
(A) *Ascaris lumbricoides and Wuchereria bancrofti* (B) *Leishmania donovani and Plasmodium ovale*
(C) *Ascaris lumbricoides and Leishmania donovani* (D) *Wuchereria bancrofti and Plasmodium ovale*
Ans : (D)
Hints : *Wuchereria bancrofti* requires femal *Culex* and *Plasmodium ovale* requires female *Anopheles* to complete their life-cycle

35. In which diagnostic system, Piezoelectric effect and Reverse Piezoelectric effect are involved ?
(A) EEG (B) CAT (C) USG (D) MRI
Ans : (C)
Hints : In Ultrasonographic technique these effects are involved for proper diagnosis

36. Main cause of Eutrophication is
(A) Fluctuation of temperature (B) Unusual growth of aquatic vegetations
(C) Enrichment of nutrients (D) Abundance of microorganisms
Ans : (C)
Hints : Enrichment of nutrients occur by addition of nitrates and phosphates through fertilizers or sewage to an aquatic system.

37. The body of Rohu fish is covered by
(A) Cycloid scale but the tail is homocercal (B) Placoid scale but the tail is heterocercal
(C) Cycloid scale but the tail is heterocercal (D) Placoid scale but the tail is homocercal
Ans : (A)
Hints : Rohu (*Labeo rohita*) is a carp in which body is covered by cycloid scales and the tail is homocercal

38. Management of National Park is controlled by
(A) State Government (B) Central Government
(C) United Nations (D) Non-Government Organizations
Ans : (B)

39. Which one is an example of living fossil ?
(A) Coral (B) *Ascidia* (C) *Octopus* (D) King crab
Ans : (D)
Hints : It belongs to phylum arthropoda and retains all ancient characters

40. The removal of 'Keystone' species will affect
(A) The producers (B) The consumers
(C) The ecosystem (D) The decomposers
Ans : (C)
Hints : Keystone species is that which inspite of its low abundance affects the whole ecosystem

41. Objects less than 0.2 m in size cannot be seen under light microscope because
(A) The wave length of visible light is 3900 Å to 7800 Å
(B) Only two types of lenses are used
(C) Maximum magnifying power of ocular lens is 20 X
(D) Maximum magnifying power of objective lens is 100 X
Ans : (A)
Hints : Because at the wavelength of visible light (3900 Å to 7800 Å) objects cannot be resolved that are less than 0.2 m.

42. If the sequence of bases in the coding strand of a double stranded DNA is 5 GTTCGAGTC-3 , the sequence of bases in its transcript will be
(A) 5 - GACUCGAAC-3 (B) 5 - CAAGCUCAG-3 (C) 5 - GUUCGAGUC-3 (D) 5 - CUGAGCUUG-3
Ans : (C)
Hints : The sequence of transcript (i.e., RNA transcribed) is same as t e coding strand except in place of thymine it is uracil.

43. Immunity that develops in the fetus after receiving antibodies from mother's blood through placenta is
(A) Naturally acquired active immunity
(B) Artificially acquired active immunity
(C) Naturally acquired passive immunity
(D) Artificially acquired passive immunity
Ans : (C)
Hints : Fetus receives IgG antibody from mother through the placenta so, it is naturally acquired passive immunity.

44. The serous membrane which covers the lungs is called
(A) Pericardium (B) Periton um (C) Perichondrium (D) Pleura
Ans : (D)
Hints : Parietal and visceral pleura cover lungs.

45. The volume of air that can be breathed i by maximum forced inspiration over and above the normal inspiration is called
(A) Expiratory Reserved Volume (B) Inspiratory Reserved Volume
(C) Vital Capacity (D) Inspiratory Capacity
Ans : (B)
Hints : Volume of air that can be breathed in by maximum forced inspiration above tidal volume or normal inspiration is called as inspiratory reserve volume.

46. How many ATP are produced when one molecule of $FADH_2$ is oxidized to FAD through Electron Transport System?
(A) 2 (B) 3 (C) 1 (D) 4
Ans : (A)

47. Which valve is present at the opening of coronary sinus?
(A) Mitral valve (B) Eustachian valve (C) Thebesian valve (D) Tricuspid valve
Ans : (C)
Hints : Opening of coronary sinus is guarded by Thebesian valve.

48. Which of the following organs does not produce any digestive enzymes?
(A) Salivary gland (B) Pancreas (C) Liver (D) Stomach
Ans : (C)
Hints : Liver produces bile juice which is devoid of enzymes.

49. The disease that occurs in mature adult human being due to deficiency of calciferol is

(A) Keratomalacia (B) Osteomalacia (C) Glossitis (D) Pernicious anaemia

Ans : (B)

Hints : Calciferol is vitamin D. Its deficiency in adult causes osteomalacia in which bone becomes weak and fragile.

50. Which blood cells can engulf bacteria by phagocytosis?

(A) Eosinophil and Basophil (B) Basophil and Lymphocyte

(C) Neutrophil and Monocyte (D) Neutrophil and Lymphocyte

Ans : (C)

Hints : Neutrophil and monocyte are major phagocytic cells of immune system.

51. Which excitatory neurotransmitter is involved in the transmission of impulse at the neuro-muscular junction?

(A) Epinephrine (B) Serotonin (C) Acetyl choline (D) Glycine

Ans : (C)

Hints : Acetylcholine is the neurotransmitter that helps in neuromuscular transmission.

52. Which area of cerebral cortex is responsible for the interpretation of speech?

(A) Brocca's area (B) Wernicke's area

(C) Premotor area (D) Association area of sensory cortex

Ans : (B)

Hints : Interpretation of speech (understanding speech) is in Werni ke s area of temporal lobe.

53. Which of the following pituitary hormones is secreted withou the involvement of a releasing hormone (RH)?

(A) Thyroid Stimulating Hormone (TSH) (B) Follicle Stimulating Hormone (FSH)

(C) Oxytocin (D) Prolactin

Ans : (C)

Hints : Oxytocin and ADH are synthesize and secreted directly from hypothalamic nuclei without involvement of releasing hormones.

54. Which of the following hormones is a derivative of fatty acid?

(A) Gastrin (B) T yroxin (C) Estrogen (D) Prostaglandins

Ans : (D)

Hints : Prostaglandin is the derivative of unsaturated 20 C fatty acid. It is a local hormone.

55. Which of the followings is **NOT** involved in muscular contraction?

(A) Calcium ion (B) Troponin (C) Actin (D) Magnesium ion

Ans : (D)

Hints : Actin, myosin, troponin, tropomyosin and calcium ions are directly involved in muscle contraction but Mg^{++} ion is secondarily involved in this process.

56. Proximal convoluted tubule of nephron is responsible for

(A) Filtration of blood

(B) Maintenance of Glomerular Filtration Rate

(C) Selective reabsorption of glucose, amino acid, NaCl and water

(D) Reabsorption of salts only

Ans : (C)

Hints : PCT of nephron is the main site for selective reabsorption of glucose, amino acids, water and different ions.

57. Which of the following processes was discovered by Lederberg and Tatum (1946)?
(A) Transduction (B) Transformation (C) Asexual reproduction (D) Conjugation
Ans : (D)

58. The component of bacteria that retains the crystal violet stain during Gram-staining is
(A) O-antigen (B) Lipopolysaccharide
(C) Peptidoglycan (D) Cytoplasmic membrane
Ans : (C)
Hints : During Gram staining alcohol treatment is done. Alcohol solubilises lipid but not peptidoglycan. In Gram positive bacteria lipid percentage is less and peptidoglycan peprcentage is more. So, peptidoglycan which does not gets solubilised retains the stain.

59. Which of the following bacteria is observed as chain-like formation?
(A) *Escherichia coli* (B) *Bacillus subtilis*
(C) *Sreptococcus pyogenes* (D) *Micrococcus flavus*
Ans : (C)

60. During gene cloning, the enzyme used to join the insert DNA with the plasmid vector is
(A) DNA ligase (B) Restriction endonuclease
(C) Alkaline phosphatase (D) Exonuclease
Ans : (A)
Hints : DNA ligase is also called as molecular glue because it is used to join insert DNA with the plasmid vector.

CATEGORY - II

Q.61 to Q.75 carry two marks each, for which only one option is correct. Any wrong answer will lead to deduction of 2/3 mark

61. The partial floral formula of a flower is $K_{(5)}C_5A_{(\ )}\underline{G}_{(5)}$ Which f the following set of information is conveyed here?
(A) Gamosepalous, polypetalous, syncarpous and superior o ary
(B) Polysepalous, polypetalous, syncarpous and inf rior ovary
(C) Gamosepalous, gamopetalous, polycarpou and superior ovary
(D) Gamosepalous, polypetalous, syncarpous and in erior ovary
Ans : (A)

62. In a plant species, flower colour yellow is dominant over white, and fruit shape round is dominant over elongated. Crossing was performed between two pure nes-one having yellow-flower and round-fruit, and another with white-flower and elongated-fruit. About 20 plants survived in F1 progeny. Plants of F1 were allowed to self-fertilize, and about 960 plants survived in F2. If the traits follow Mendelian inheritance, the number of plants would have yellow-flower and round-fruit in F1 and F2 are respectively
(A) 20,960 (B) 20,540 (C) 10,180 (D) 10,60
Ans : (B)
Hints :

P: YYRR (yellow flower + round fruit) × yyrr (white flower + elongated fruit)

F_1: YyRr (yellow flower + round fruit) ⟶ 20 plants

♂ YyRr × ♀ YyRr

F_2: (yellow flower + round fruit) ⟶ $\frac{9}{16} \times 960$

= 540 plants

63. Match the items in column I with those in column II, and choose the CORRECT answer.

Column I	Column II
P. Control of weeds	i. Gibberellin
Q. Induction of germination	ii. Cytokinin
R. Ripening of fruit	iii. 2, 4-D
S. Delaying of senescence	iv. Ethylene

(A) P-ii, Q-iv, R-iii, S-i (B) P-iii, Q-i, R-iv, S-ii (C) P-i, Q-ii, R-iv, S-iii (D) P-ii, Q-iii, R-i, S-iv

Ans : (B)

64. Out of 38 molecules of ATP produced upon aerobic respiration of glucose, the break up in ATP production in glycolysis (P), pyruvate to acetyl-CoA formation (Q) and Krebs cycle (R) is as follows:

(A) P = 2, Q = 6, R = 30 (B) P = 8, Q = 6, R = 24 (C) P = 8, Q = 10, R = 20 (D) P = 2, Q = 12, R = 24

Ans : (B)

65. The correct sequence of organelles in which glycolate and glyoxylate are produced sequentially in photorespiration, is

(A) Chloroplast and mitochondria (B) Chloroplast and peroxisome
(C) Peroxisome and mitochondria (D) Peroxisome an chloroplast

Ans : (B)

66. Cells die at the time of release of secretary materials in

(A) Holocrine gland (B) Apocrine gland (C) Merocr ne gl nd (D) Mixed gland

Ans : (A)

Hints : Cell die at the time of release of secretary materials in holo rine gland, *e.g.*, Sebaceous gland

67. X-ray is needed for

(A) Ultrasonography (B) CT scanning (C) MRI (D) NMR

Ans : (B)

Hints : A low dose of X-ray is used in CT scan.

68. Which of the following statements is wrong?

(A) Test tube baby grows inside test tube
(B) Test tube baby grows within mother's womb
(C) Test tube baby grows within surrogat mother's womb
(D) Test tube baby grows following uterine fertilization

Ans : (D)

Hints : In test tube baby proc dure, the fertilization is *in vitro* not in the uterus. But it grows upto 4-8 cell stage inside test tube.

69. The correct sequence of emb yonic development is

(A) Blastula - Morula - Zygote - Gastrula - Embryo (B) Zygote - Blastula - Morula - Gastrula - Embryo
(C) Zygote - Morula - Blastula - Gastrula - Embryo (D) Gastrula - Morula - Zygote - Blastula - Embryo

Ans : (C)

Hints : Sequence of embryonic development is Zygote Morula Blastula Gastrula Embryo

70. The time interval of appearance of fever in the malarial patients depends on the types of malaria. The research evidences suggest that such time intervals are – (1) 36 to 48 hours, (2) 48 hours, and (3) 72 hours. If any such patient experiences fever at an interval of 48 hours, then the said patient suffers from

(A) Only benign tertian malaria
(B) Quarantan malaria or mild tertian malaria
(C) Malignant tertian malaria or Benign tertian malaria
(D) Mild tertian malaria or Benign tertian malaria

Ans : (D)

Hints : Patient experiences fever at an interval of 48 hours in mild tertian malaria caused by *P. ovale* and benign tertian malaria by *P.vivax*

71. The structure of *E. coli* chromosomal DNA is
(A) Double stranded, right handed and circular
(B) Single stranded, right handed and circular
(C) Double stranded, left handed and linear
(D) Double stranded, left handed and circular
Ans : (A)

72. Absorption of vitamin B_{12} in human requires "P" glycoprotein secreted form "Q". The correct choice of P and Q are
(A) P = Extrinsic factor and Q = Stomach
(B) P = Intrinsic factor and Q = Stomach
(C) P = Intrinsic factor and Q = Small intestine
(D) P = Exopolysaccharide and Q = Small intestine
Ans : (B)
Hints : Castle's intrinsic factor is secreted by oxyntic or parietal cell of stomach. It helps in vitamin B_{12} absorption.

73. What type of cartilaginous tissue is found in the inter-vertebral discs?
(A) Costal cartilage
(B) Hyaline cartilage
(C) White fibrous cartilage
(D) Yellow elastic cartilage
Ans : (C)
Hints : Inter-vertebral discs are made up of white fibrous cartilage.

74. If spermatogenesis proceeds too rapidly, inhibin is released. Inhibin reduces the secretion of
(A) Lutinizing Hormone (LH)
(B) Follicle Stimulating Hormone (FSH)
(C) Testosterone
(D) Interstitial Cell Stimulating Hormone(ICSH)
Ans : (B)

Hints : Inhibin is secreted from Sertoli cells and inhibits secretion of FSH from anterior pituitary.

75. Which of the following statements are **TRUE** for "Motor rtex" ?
(i) It is located in the frontal lobe of cerebral cortex
(ii) It contains pyramidal cells
(iii) It is responsible for all visual functions
(v) It is essential for our thought processes
(v) It stimulates wakefulness
(vi) It regulates voluntary muscular movements
(A) (i), (ii), (iii) and (iv)
(B) (ii), (iii), (iv) and (v)
(C) (ii), (iv), (v) and (vi)
(D) (i), (ii), (iv) and (vi)
Ans : (D)
Hints : Motor cortex of frontal lobe regulates voluntary muscular movements based on our thought processes. It contains pyramidal and stellate cells.

CATEGORY - III

Q.76 to Q.80 carry two marks each, for which one or more than one options may be correct. Marking of correct options will lead to a maximum mark of two on pro rata basis. There will be no negative marking for these questions. However, any marking of wrong option will lead to award of zero mark against the respective question – irrespective of the number of correct options marked.

76. Identify the correct statement (s) in relation to C4 photosynthesis
    (A) Kranz anatomy is an essential feature for C4 plants
    (B) C4 plants have higher water use efficiency than C3 plants
    (C) Photrespiration can be minimized when C4 pathway is in operation
    (D) Conversion of oxaloacetate to malate occurs in the bundle sheath cells

    Ans : (A,B,C)

77. Genetically improved crop varieties can be developed in laboratory by
    (A) Somatic hybridization
    (B) Transgenic technology
    (C) Cell suspension culture
    (D) Somaclonal variation

    Ans : (A,B,D)

    Hints : Somatic hybridization, somaclonal variation and transgenic technology are lab methods to create genetically improved varieties.

78. Sand flies play significant role in spreading Kala-azar because they
    (A) Suck blood only from the patients suffering from kala-azar
    (B) Convert amastigote into promastigote
    (C) Engulf amastigote at the time of blood sucking from the infected persons
    (D) Inject promastigote into the body of non-infected persons at the time of blood sucking

    Ans : (B,C,D)

    Hints : Sand fly takes a blood meal and injec s m crophages infected with amastigotes Amastigotes transform into promastigote stage in midgut Divide in midgut and migrate to proboscis Amastigotes again get transferred into the skin of host during taking blood as meal.

79. Which of the following factor(s) increase blood pressure ?
    (A) Increase of cardiac output
    (B) Constriction of blood vessel
    (C) Activation of parasympathetic nerve
    (D) Increase of blood volum

    Ans : (A,B,D)

    Hints : Blood pressure increases in case of increased cardiac output, constriction of blood vessels, increase in the volume of blood and by activation of sympathetic nerves.

80. Which of the following statement(s) are **TRUE**?
    (A) Antibiotics can kill bacteria but disinfectants do not
    (B) Disinfectants have better bactericidal efficiency than antibiotics
    (C) Antibiotics are of microbial origin but disinfectants are chemical compounds
    (D) Antibiotics can be injected into the patients whereas disinfectants are not

    Ans : (B,C,D)

    Hints : Disinfectants are more potent bactericidal agents but cannot be injected into the patients.