

# WBJEEM - 2014

## 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



7. The primary cell wall is mainly made up of  
(A) Lignin (B) Pectin (C) Cellulose (D) Protein
8. Which of the following 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 : (C)**

**Ans : (D)**

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

9. Which of the following 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 growth 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  $X^cY$ .

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 from *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 fibroblast can act as pseudopodia 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 indicates substrate concentration at which rate of reaction is half of the maximum velocity
24. Proteins helping in Kinetocore formation of yeast are  
 (A) CBF2 and Kar<sup>3</sup> P (B) CBF2 and CBF3  
 (C) CBF3 and Kar<sup>3</sup> P (D) CBF2, CBF3 and Kar<sup>3</sup> P  
**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) Controlling ozone destroying substances  
 (C) Management of hazardous wastes (D) Conservation 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 require mosquito 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 female *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  $0.2\ \mu\text{m}$  in size cannot be seen under light microscope because  
(A) The wave length of visible light is  $3900\ \text{\AA}$  to  $7800\ \text{\AA}$   
(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 ( $3900\ \text{\AA}$  to  $7800\ \text{\AA}$ ) objects cannot be resolved that are less than  $0.2\ \mu\text{m}$ .

42. If the sequence of bases in the coding strand of a double stranded DNA is  $5' \text{ GTTCGAGTC-}3'$ , the sequence of bases in its transcript will be  
(A)  $5' \text{ -GACUCGAAC-}3'$  (B)  $5' \text{ -CAAGCUCAG-}3'$  (C)  $5' \text{ -GUUCGAGUC-}3'$  (D)  $5' \text{ -CUGAGCUUG-}3'$

**Ans : (C)**

**Hints :** The sequence of transcript (i.e., RNA transcribed) is same as the 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 in 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  $\text{FADH}_2$  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 Wernicke's area of temporal lobe.

53. Which of the following pituitary hormones is secreted without 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 synthesized 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) Thyroxin (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 following 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 percentage is more. So, peptidoglycan which does not get solubilised retains the stain.

59. Which of the following bacteria is observed as chain-like formation?  
 (A) *Escherichia coli* (B) *Bacillus subtilis*  
 (C) *Streptococcus 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**

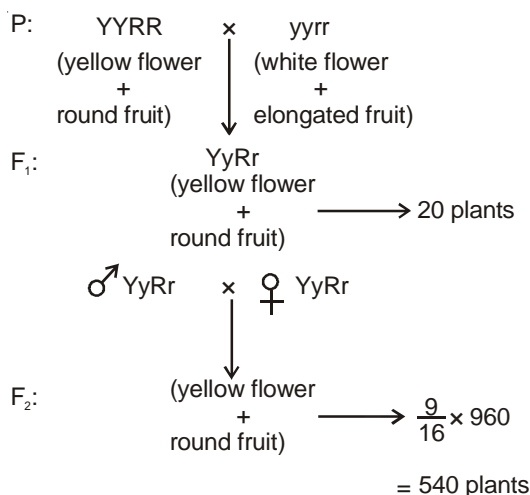
61. The partial floral formula of a flower is  $K_{(5)}C_5A_{(\infty)}\underline{G}_{(5)}$ . Which of the following set of information is conveyed here?  
 (A) Gamosepalous, polypetalous, syncarpous and superior ovary  
 (B) Polysepalous, polypetalous, syncarpous and inferior ovary  
 (C) Gamosepalous, gamopetalous, polycarpous and superior ovary  
 (D) Gamosepalous, polypetalous, syncarpous and inferior 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 lines—one having yellow-flower and round-fruit, and another with white-flower and elongated-fruit. About 20 plants survived in F<sub>1</sub> progeny. Plants of F<sub>1</sub> were allowed to self-fertilize, and about 960 plants survived in F<sub>2</sub>. If the traits follow Mendelian inheritance, the number of plants would have yellow-flower and round-fruit in F<sub>1</sub> and F<sub>2</sub> are respectively  
 (A) 20,960 (B) 20,540 (C) 10,180 (D) 10,60

**Ans : (B)**

**Hints :**





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 and chloroplast

**Ans : (B)**

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

- (A) Holocrine gland    (B) Apocrine gland    (C) Merocrine gland    (D) Mixed gland

**Ans : (A)**

**Hints :** Cell die at the time of release of secretory materials in holocrine 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 surrogate mother's womb  
(D) Test tube baby grows following uterine fertilization

**Ans : (D)**

**Hints :** In test tube baby procedure, 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 embryonic 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<sub>12</sub> in human requires "P" glycoprotein secreted from "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<sub>12</sub> 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) Luteinizing 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 cortex" ?  
(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) Photorespiration 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 injects macrophages 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 volume

**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.