

- Identify from the following, a characteristic pigment which contain copper containing protein :  
(a) plastoquinone (b) ferredoxin  
(c) cytochrome (d) plastocyanin
- In which of the following regions of a nephron does maximum reabsorption of useful substances, takes place ?  
(a) Henle's loop  
(b) Glomerulus  
(c) Proximal convoluted tubule  
(d) Distal convoluted tubule
- Which of the following statements is true with reference to cross pollination in angiosperms ?  
(a) It requires the production of a large number of pollen grains  
(b) It can fail to occur due to distance barrier  
(c) It occurs only in unisexual flowers  
(d) It most often results in high yield of plants
- Which of the following natural process is likely to hasten organic evolution ?  
(a) Favourable environment  
(b) Overproduction  
(c) Abundant genotypic variations  
(d) Reproductive isolation
- A technology which has found immense use in solving cases of disputed parentage, is :  
(a) polymerase chain reaction  
(b) DNA finger printing  
(c) monoclonal antibody production  
(d) recombinant DNA technology
- Green house effect is the cumulative result of the influences of certain gases. Identify the gas, which is not involved in this influence :  
(a) methane  
(b) chlorofluorocarbons  
(c) nitrogen  
(d) carbon dioxide

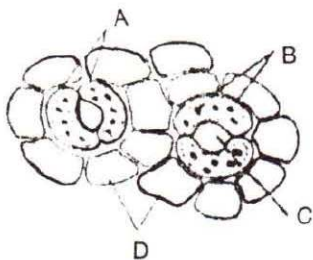
- Column-I lists some principles, pertaining to physiology of plants. Column-II lists the names of scientist who proposed the idea. Match the two columns. Identify the correct choice from the given :

Column-I	Column-II
A. Mass flow hypothesis	p. J. C. Bose
B. Relay pump theory	q. Strasburger
C. Transpiration pull theory	r. Munch
D. Pulsatile movement theory	s. Godlewski
	t. Dixon and Jolly

- (a) A = r ; B = s ; C = t ; D = p  
(b) A = r ; B = s ; C = p ; D = t  
(c) A = s ; B = r ; C = p ; D = t  
(d) A = s ; B = r ; C = t ; D = p

- Which one of the following types of silk is being produced extensively in South East Asia :  
(a) Eri  
(b) Mulberry  
(c) Tassah  
(d) Muga
- Identify from the following plant parts, the major contributors to human food ?  
(a) Stem  
(b) Root  
(c) Fruits  
(d) Leaves
- Alcohol is the most socially accepted narcotic drug. Excessive consumption of alcohol leads to :  
(a) state of hallucination  
(b) loss of memory  
(c) suppression of brain function  
(d) cirrhosis of liver

11. The following figure shows the stomatal apparatus. Identify the parts labelled as A, B, C and D. Choose the correct answer from the following :



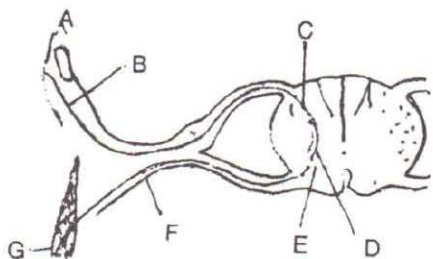
- (a) A = Guard cells, B = Stoma, C = Chloroplasts, D = Subsidiary cells  
 (b) A = Subsidiary cells, B = Chloroplasts, C = Stoma, D = Guard cells  
 (c) A = Guard cells, B = Chloroplasts, C = Stoma, D = Subsidiary cells  
 (d) A = Subsidiary cells, B = Stoma, C = Chloroplasts, D = Guard cells
12. In which of the following plants, there will be no transpiration ?  
 (a) Aquatic, submerged plants  
 (b) Plants living in deserts  
 (c) Aquatic plants with floating leaves  
 (d) Plants growing in hilly regions
13. Which of the following groups of algae do not have eukaryotic organization ?  
 (a) Green algae  
 (b) Blue-green algae  
 (c) Red algae  
 (d) Golden brown algae
14. Identify from the following a hormone produced by the pituitary gland in both males and females but functional only in females :  
 (a) vasopressin  
 (b) relaxin  
 (c) prolactin  
 (d) somatotropic hormone
15. Which one of the following is not a characteristic feature of bryophytes ?  
 (a) Dominant gametophytic generation  
 (b) Filamentous rhizoids

- (c) Amphibious habitat  
 (d) Vascular tissues

16. Haemophilia is a condition where there is :  
 (a) no production of haemoglobin in the blood  
 (b) no production of melanin in the skin  
 (c) a failure in the immune mechanism of blood  
 (d) a delay in the clotting of blood
17. Read the statements A and B  
 A : The human small intestine is the longest portion in the alimentary canal  
 B : Absorption of digested food requires a very large surface area  
 Identify the correct choice on the two statements  
 (a) statement A is correct, B is wrong  
 (b) statement A and B are both correct  
 (c) both the statements are wrong  
 (d) statement B is correct, A is wrong
18. In the lac-operon model, lactose molecules function as :  
 (a) inducers which bind with the operator gene  
 (b) repressors which bind with the operator gene  
 (c) inducers which bind with the repressor protein  
 (d) corepressors which bind with repressor protein
19. When a cell of diameter  $2 \mu$  grows to double its diameter, what will happen to its surface area volume relationship ?  
 (a) It will reduce to half  
 (b) It will remain the same  
 (c) It cannot be determined  
 (d) It will double
20. Which of the following is a genetically dominant trait in human beings ?  
 (a) Colourblindness  
 (b) O blood group  
 (c) Albinism  
 (d) Rh<sup>+</sup> blood group

21. When the chromosome number of a given organism has one additional chromosome in one of the homologous pairs, the condition is known as :
- trisomy
  - monosomy
  - polyploidy
  - nullisomy
22. If a germ cell in a female gonad and a germ cell in a male gonad begin undergoing meiosis simultaneously, what will be the ratio of ova and sperms produced ?
- 1 : 1
  - 1 : 2
  - 1 : 4
  - 2 : 1
23. Soil conservation is a practice in which :
- soil is protected from being carried away by wind and water
  - soil is well aerated
  - soil fertility is enhanced
  - soil erosion is allowed
24. The main function of lacteals in the villi of human small intestine is the absorption of :
- amino acids and glucose
  - glucose and vitamins
  - water and minerals salts
  - fatty acids and glycerol
25. A micro-organism, when viewed under a compound microscope with an objective lens of 40X and an eye piece of 10X magnification measured 4000  $\mu$  in length. The same micro-organism when observed under a dissection microscope with a lens of 10 X magnification would measure :
- 40  $\mu$
  - 100  $\mu$
  - 10  $\mu$
  - 400  $\mu$
26. Identify from the following, a plant tissue in which lignin does not occur in the cell walls ?
- Collenchyma
  - Sclerenchyma fibres
  - Sclereids
  - Xylem tracheae
27. Which of the following statement is not true with reference to mitochondria ?
- They divide in synchrony with cell cycle
  - They contain DNA
  - The contain cristae
  - They store and release chemical energy
28. Column-I lists the parts of the human brain and column-II lists the functions. Match the two columns and identify the correct choice from those given :
- | Column-I        | Column-II                          |
|-----------------|------------------------------------|
| A. Cerebrum     | p. controls the pituitary          |
| B. Cerebellum   | q. controls vision and hearing     |
| C. Hypothalamus | r. controls the rate of heart beat |
| D. Midbrain     | s. seat of intelligence            |
|                 | t. maintains body posture          |
- (a) A = t ; B = s ; C = q ; D = p  
 (b) A = s ; B = t ; C = q ; D = p  
 (c) A = t ; B = s ; C = p ; D = q  
 (d) A = s ; B = t ; C = p ; D = q
29. The site of EMP pathway of breakdown of glucose in a cell is
- nucleoplasm
  - mitochondria
  - cytoplasm
  - peroxysome

30. The following diagram indicates the reflex arc. Identify the parts labelled as A, B, C, D, E, F and G. Choose the correct option :



- (a) A = sense organ; B = sensory nerve ;  
C = dorsal horn ; D = interneuron ;  
E = ventral horn ; F = motor nerve ;  
G = effector
- (b) A = sense organ; B = sensory nerve;  
C = ventral horn; D = interneuron;  
E = dorsal horn; F = motor nerve;  
G = effector
- (c) A = sense organ; B = motor nerve;  
C = dorsal horn; D = interneuron;  
E = ventral horn; F = sensory nerve;  
G = effector
- (d) A = effector; B = motor nerve;  
C = ventral horn; D = interneuron; E  
= dorsal horn; F = sensory nerve; G  
= sense organ
31. Which of the following tissue originates exclusively from the ectoderm of the embryo ?
- (a) Muscular tissue  
(b) Epithelial tissue  
(c) Nervous tissue  
(d) Connective tissue
32. The pyramid of energy is always upright for any ecosystem. This situation indicates the fact that :
- (a) producers have the lowest energy conversion efficiency  
(b) carnivores have a better energy conversion efficiency than herbivores  
(c) energy conversion efficiency is the same in all trophic levels  
(d) herbivores have a better energy conversion efficiency than carnivores

33. Gynoecium in the members of family Leguminosae is composed of :
- (a) two carpels (b) one carpel  
(c) five carpels (d) three carpels
34. Identify from the following, the compound that links glycolysis and Krebs's cycle :
- (a) oxalo acetic acid (b) pyruvic acid  
(c) lactic acid (d) acetyl Co-A
35. Which part of the human brain controls the breathing movements ?
- (a) Medulla oblongata (b) Cerebellum  
(c) Diencephalon (d) Cerebrum
36. Leaf fall occurs in a tree when there is an increase in the concentration of :
- (a) abscisic acid (b) auxins  
(c) gibberellins (d) cytokinins
37. Which of the following is a disease resistant, high yielding breed of poultry developed in Karnataka ?
- (a) Aseel (b) White leg horn  
(c) Giriraja (d) Plymouth rock
38. Sertoli cells are nourishing cells in the testis. They also secrete a hormone. Identify the same :
- (a) gonadotropin (b) testosterone  
(c) relaxin (d) inhibin
39. Molecular biology is concerned with the study of :
- (a) structure and functions of polymers of life  
(b) all aspects of micro organisms  
(c) the process by which molecules of chemical substances organized into primitive form of life  
(d) the chemistry of living organisms
40. The inner, darker and harder portion of secondary xylem that cannot conduct water, in an older dicot stem, is called :
- (a) alburnum (b) bast  
(c) wood (d) duramen
41. The closed circulatory system is found in :
- (a) insects (b) lobsters  
(c) frog (d) clams

42. The law of limiting factors was proposed with particular reference to photosynthesis. Identify the scientist who proposed this law ?  
 (a) Calvin (b) Weismann  
 (c) Emerson (d) Blackmann
43. Osmoregulation in *Paramecium* is a function of :  
 (a) contractile vacuole (b) trichocysts  
 (c) cytophyge (d) cytostome
44. Identify from the following the branch of biology which provides direct evidences in favour of organic evolution ?  
 (a) Morphology (b) Taxonomy  
 (c) Palaeontology (d) Embryology
45. Which of the following groups of cells in the male gonad, represent haploid cells ?  
 (a) Spermatogonial cells  
 (b) Germinal epithelia cells  
 (c) Secondary spermatocytes  
 (d) Primary spermatocytes
46. A nucleosome is a portion of the chromonema containing :  
 (a) only histones  
 (b) both DNA and histones  
 (c) only DNA  
 (d) both DNA and RNA
47. Maximum amount of oxygen is exchanged from the blood in the :  
 (a) capillaries surrounding tissue cells  
 (b) arteries of the body  
 (c) left auricle of the heart  
 (d) capillaries surrounding the alveoli
48. Which of the following term is used to describe the component isolated from a plant, for *in vitro* culturing in the specific medium ?  
 (a) Callus (b) Embryoid  
 (c) Synthetic seeds (d) Explant
49. If a cell has twice as much DNA as in a normal functional cell, it means that the cells :  
 (a) is preparing to divide  
 (b) has completed division  
 (c) has reached the end of its life span  
 (d) has ceased to function
50. Apical dominance in plants is due to the presence of :  
 (a) cytokinins in the leaf apex  
 (b) gibberellins in the lateral bud  
 (c) auxins at the shoot tip  
 (d) abscisic acid at the shoot tip
51. Which of the following structures are derivatives of the endoderm ?  
 (a) Alimentary canal and respiratory structures  
 (b) Muscles and blood  
 (c) Excretory and reproductive structures  
 (d) Skin and nerve cord
52. The sequence of nitrogen bases in a portion of a coding segment of DNA was AAT GCT TAG GCA. What will be the sequence of nitrogen bases in the corresponding region of the transcribed *m*-RNA ?  
 (a) UUT CGT TUC CGU  
 (b) AAT GCT TAG GCA  
 (c) UUA CGA AUC CGU  
 (d) TTA CGA ATC CGT
53. Which chamber of the human heart has the thickest muscular wall ?  
 (a) Left auricle (b) Left ventricle  
 (c) Right auricle (d) Right ventricle
54. Entomology is concerned with the study of :  
 (a) formation and properties of soil  
 (b) agricultural practices  
 (c) various aspects of human life  
 (d) various aspects of insects
55. Which of the following is called as a detritivore ?  
 (a) An animal feeding on decaying organic matter  
 (b) An animal feeding on a plant  
 (c) A plant feeding on an animal  
 (d) An animal feeding on another animal
56. How many human teeth appear twice during the life span of an individual ?  
 (a) 16 (b) 32  
 (c) 22 (d) 20

57. If the size of a fertilized egg of frog is compared with the size of its blastula and gastrula stages, which of the following observations will be correct ?
- There is a progressive increase in size from zygote to blastula to gastrula
  - All the three will be of the same size
  - Zygote will be smaller, while blastula and gastrula will be larger
  - Gastrula will be larger, while zygote and blastula will be of same size
58. During protein synthesis AUG functions as the initiator codon in *m*-RNA. What should be the anticodon on the *t*-RNA molecule that picks up and brings the amino acid specified by the codon ?
- UAC
  - TAC
  - CAU
  - GUA
59. Choose the odd pair out in the following :
- areolar connective tissue—collagen
  - epithelium—keratin
  - neuron—melanin
  - muscle fibre—actin
60. The macronutrient which is an essential component of all organic compounds, yet not obtained by plants from soil, is :
- nitrogen
  - carbon
  - phosphorus
  - magnesium



### Answer – Key

1. d	2. c	3. a	4. c	5. b	6. c	7. a	8. a	9. c	10. d
11. c	12. a	13. b	14. c	15. d	16. d	17. b	18. c	19. a	20. d
21. a	22. c	23. a	24. d	25. b	26. a	27. a	28. d	29. c	30. a
31. c	32. d	33. b	34. d	35. a	36. a	37. a	38. d	39. d	40. d
41. c	42. d	43. a	44. c	45. c	46. b	47. a	48. d	49. a	50. c
51. a	52. c	53. b	54. d	55. a	56. d	57. d	58. a	59. c	60. b

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