

KCET 2017 BIOLOGY QUESTION PAPER

1. Identify the 'order' from the following
 - a) Carnivora b) Muscidae
 - c) Insecta d) Panthera

2. Which of the following options show the characters of mycoplasma?
 - a) Smallest living cell without cell wall survive with oxygen
 - b) Smallest living cell with cell survive with oxygen
 - c) Smallest living cell without cell wall survive without oxygen
 - d) Smallest living cell with cell wall survive without oxygen

3. Which class of Algae reproduces asexually by non – motile spores and sexually by non – motile gametes?
 - a) Rhodophyceae b) Phaeophyceae
 - c) Chlorophyceae d) Cyanophyceae

4. Which of the following plants produce zygomorphic flowers?
 - a) Hibiscus b) Canna
 - c) Gulmohar d) Mustard

5. The secondary wall material Suberin is deposited on the walls of
 - a) Pericycle of stem and endodermis of root
 - b) Phellem of stem and endodermis of root
 - c) Epidermis of stem and endodermis of root
 - d) Phellogen and phelloderm

6. The type of epithelium found in the fallopian tube which functions to move particles or mucous in specific direction is
 - a) Squamous epithelium
 - b) Cuboidal epithelium
 - c) Ciliated epithelium
 - d) Columnar epithelium

7. Which one of the following is not included under endomembrane system?
 - a) Endoplasmic reticulum
 - b) Mitochondria
 - c) Lysosome
 - d) Vacuole

8. In the following diagrammatic representation of a standard ECG the 'T' represents

 - a) Depolarisation of Atria
 - b) Depolarisation of Ventricles
 - c) Repolarisation of Atria
 - d) Repolarisation of Ventricles

9. Which of the following is not a characteristic of facilitated transport?
 - a) Uphill transport
 - b) Highly selective
 - c) Requires special membrane proteins
 - d) Transport saturates

10. Identify the elements whose deficiency causes both necrosis and chlorosis
 - a) Mg, K b) Mo, Ca
 - c) Fe, Mn d) Cu, Co

11. The outcome of Calvin cycle include:
 - a) 6 CO₂, 18 ATP, 12 NADPH
 - b) One glucose, 18 ATP, 12 NADPH
 - c) 6 CO₂, 18 ATP, 12 NADPH
 - d) One glucose, 18 ADP, 12 NADP

12. The number of ATP molecules utilized for the breakdown of one molecule of glucose during glycolysis is
 - a) 4 b) 2
 - c) 6 d) 8

13. Match the enzymes of Column – I with the function of Column – II. Choose the correct option:

Column – I	Column – II
1. Enterokinase	p. digests milk proteins
2. Rennin	q. Digests carbohydrates
3. Amylase	r. activates try
4. Lipase	s. acts on nuclei acids
	t. breakdown fats

- a) 1 - r, 2 - p, 3 - q, 4 - t
 b) 1 - r, 2 - p, 3 - t, 4 - q
 c) 1 - s, 2 - p, 3 - t, 4 - q
 d) 1 - s, 2 - q, 3 - p, 4 - t
14. The volume of air inspired or expired by a healthy man per minute is:
 a) 1000 ml - 1100 ml
 b) 2500 ml - 3000 ml
 c) 6000 ml - 8000 ml
 d) 400 ml - 500 ml
15. The blood cell that secretes histamine, serotonin and heparin is:
 a) Neutrophil b) T - lymphocyte
 c) Killer cell d) Basophil
16. The hormones involved in maintaining calcium balance in the human body are:
 a) PTH and TCT b) PTH and LTH
 c) TCT and FSH d) MSH and ACTH
17. Amoeba is immortal because
 a) It is multicellular
 b) It is microscopic
 c) It reproduce by sexual method only
 d) Parental body is distributed among the offspring during binary fission
18. Which of the following is not a pre - fertilization event in higher organisms?
 a) Gametogenesis b) Gamete transfer
 c) Meiosis d) Cleavage
19. If a tetraploid plant contains 48 chromosomes in its nucelus, then number of chromosomes in the egg cell and in a synergid respectively:
 a) 48 and 48 b) 24 and 24
 c) 24 and 48 d) 48 and 24
20. Pollen grains are generally spherical, measuring about:
 a) 25 - 50 micrometers
 b) 25 - 50 millimeters
 c) 25 - 50 nanometers
 d) 25 - 50 centimeters
21. Which of the following characters is not required for autogamy?
 a) Flowers require synchrony in pollen release and stigma maturation
 b) Anthers and stigma should lie close to each other.
 c) Flowers should be bisexual
 d) Required pollination agents
22. Which of the following character favours the process of normal spermatogenesis in human male?
 a) Descent of tests into scrotum
 b) Testes remain in the abdominal cavity
 c) Infection by mumps virus during childhood
 d) Increased scrotal temperature
23. Accessory ducts of reproductive system of human female include:
 a) Oviduct, uterus & vagina
 b) Oviduct, ovaries & ovarian ligaments
 c) Oviduct, ovaries & mammary glands
 d) Ovaries, uterus & vagina
24. In human females, the number of primary follicles left in each ovary at puberty is:
 a) 3000 - 30,000 b) 30,000 - 60,000
 c) 60,000 - 80,000 d) 1,50,000 - 1,60,00
25. Implantation is influenced by
 a) FSH b) LH
 c) Progesterone d) Relaxin
26. In India the action plans for family planning were initiated in the year:
 a) 1972 b) 1947
 c) 1951 d) 1950
27. The inner cells mass of blastocyst becomes:
 a) Extraembryonic membrane
 b) Differentiated into embryo proper
 c) Chorionic villi
 d) Placenta
28. Example for autosomal hyper aneuploidy is
 a) Down's syndrome
 b) Klinefelter's syndrome
 c) Turner's syndrome
 d) Haemophilia
29. In dihybrid cross, when F_1 plants ($RrYy$) are self hybridised, the ratio of segregation of yellow and green in F_2 is:
 a) 1:2:1 b) 3:1
 c) 9:3:3:1 d) 1:1:1:1
30. Replacement of which one of the following nucleotides in the Hb^A gene causes sickle cell anaemia?
 a) A to T b) T to A
 c) U to A d) C to G

31. The type of sex determination in honey bee is

- a) Haplo – diploidy b) Haploidy
c) Diploidy d) ZZ – ZW

32. Match the number of nucleotides of genome of Column – I with the organisms of Column – II. Choose the correct option given below:

Column – I	Column – II
1. 5836 nucleotides	p. E. coli
2. 48502 bp	q. man
3. 4.6×10^6 bp	r. Drosophila
4. 3.3×10^9 bp	s. $\phi \times 174$ bacteriophage
	t. bacteriophage - lambda

- a) 1 – s, 2 – q, 3 – p, 4 – t
b) 1 – s, 2 – p, 3 – q, 4 – r
c) 1 – s, 2 – t, 3 – p, 4 – q
d) 1 – r, 2 – t, 3 – s, 4 – p

33. The average length of hnRNA in humans is

- a) 3000 bases b) 2.4 million bases
c) 1500 bases d) 500 bases

34. If E. coli is allowed to grow for 40 minutes in a medium containing N^{15} , then the number of N^{14}/N^{14} containing DNA would be

- a) Zero b) 20
c) 10 d) 2

35. Polymerisation of DNA nucleotides during the synthesis of lagging strand occurs in

- a) $3' \rightarrow 5'$ direction
b) $5' \rightarrow 3'$ direction
c) Any direction
d) Promotor to terminator direction

36. In lac – operon concept of gene expression, allolactose acts as,

- a) Repressor b) inducer
c) co – repressor d) co – enzyme

37. The anticodon found on the t – RNA for tryptophan amino acid is

- a) ACC b) UGG
c) UCC d) CUU

38. Which one of the following is the identifiable character of Neanderthal man?

- a) Brain capacity 650 cc – 800 cc
b) Developed pre – historic cave art
c) Lived before 2 million years ago
d) Buried their dead

39. Identify the plants that are dominant during Jurassic period

- a) Angiosperms and Bryophytes
b) Sphenopsida and Ginkgos
c) Ferns, conifers and Cycads
d) Monocotyledons and Arborescent lycopods

40. In humans, common cold is caused by

- a) Retrovirus b) Baculovirus
c) Rhinovirus d) Rhabdovirus

41. Which of the following vector – borne diseases caused by Aedes mosquitoes?

- a) Ascariasis and Filariasis
b) Malaria and Sleeping sickness
c) Dengue and Chikungunya
d) Kala azar and Filariasis

42. Morphine is obtained from the

- a) Inflorescence of Cannabis
b) Leaves of Erythroxyllum
c) Latex of Poppy plant
d) Root of Atropa

43. Inbreeding depression occurs due to continuous

- a) Intra – breeding
b) Inter – breeding
c) Inter – generic breeding
d) Inter – specific breeding

44. Identify the correct combination of crop – variety and insect pests

- a) Okra – Pusa sawani – Shoot and Fruit borer
b) Flat bean – Pusa Gaurav – Fruit borer
c) Brassica – Pusa A – 4 – Aphids
d) Brassica – Pusa sem – 3 – Jassids

45. Which of the following crop is developed by mutation breeding, that is resistant to yellow mosaic virus and powdery mildew?

- a) Cow – pea b) Okra
c) Chilli d) Mung bean

46. Which one of the following has been commercialised as blood - cholesterol lowering agent?
 a) Streptokinase b) Cyclosporin - A
 c) Statins d) α -Trypsin - A
47. As the organic matter increases in a water body, the BOD:
 a) Increases b) Decreases
 c) Remains unchanged d) Not a parameter
48. Restriction endonucleases are isolated from some bacteria. Their role in bacteria is
 a) Defence against virus
 b) Synthesis of proteins
 c) Act as genetic material
 d) Help in production
49. From which bacterium the REN - Sal - I is isolated?
 a) Escherichia coli
 b) Streptococcus aureus
 c) Haemophilus influenza
 d) Streptomyces albus
50. A transformed bacterium with human gene, fails to produce desired protein. The reason could be:
 a) Human gene may have intron which bacteria cannot process
 b) Amino acid codons for human and bacteria differ
 c) Human protein is formed but degraded by bacteria.
 d) The bacterial promoter gene cannot induce transcription of human gene
51. Read the statements 1 and 2. Choose the correct option.
 Statement 1: RNAi take place in all prokaryotic and eukaryotic organisms as a method of cellular defence.
 Statement 2: RNA interference is a pre - translational process.
 a) Statement - 1 incorrect, statement - 2 correct.
 b) Statement - 1 correct, statement - 2 incorrect.
 c) Both statement are correct
 d) Both statements are incorrect
52. The human protein α - 1 antitrypsin is obtained from
 a) Transformed bacteria
 b) Transgenic animal
 c) Transgenic plant
 d) A plant from Western Ghats
53. Psammophytes are growing in/on
 a) Rock b) Deserts
 c) Water d) shades
54. A plant shows the following modifications:
 i) Leaves covered with dense hairs
 ii) Leaf surface shiny or glabrous
 iii) Leaf blade remains rolled during day
 The adaptation of the plant is to:
 a) Conserve water
 b) prevent excessive heat
 c) check transpiration
 d) absorb water
55. Mac Arthur's vision of 5 closely related species of warbles living on same tree were able to avoid competition and co - exist by behavioral difference. This is an example for:
 a) Competitive release
 b) Resource partitioning
 c) Competitive exclusion principle
 d) Adaptive radiation
56. Climax community is a state of:
 a) Non - equilibrium b) near equilibrium
 c) pioneer species d) changing community
57. The process of decomposition delays when
 a) The detritus is made up of sugars and nitrogen compounds
 b) Aeration is sufficient
 c) Warm and moist environment exists
 d) Detritus is rich in lignin and chitin
58. The variety of indigenous cows is an example for
 a) Genetic diversity b) Species diversity
 c) Ecological diversity d) Microbial diversity

59. So far 1.5 million species are identified, in which the number of fungi species identified is more than the combined total of:

- a) Algae, lichens, mosses and ferns
- b) Fishes, amphibians, reptiles and mammals

- c) Molluscs and crustaceans
- d) Molluscs, fishes and amphibians

60. The safe method of disposal of e – waste is:

- a) Incineration
- b) Burning in open field
- c) Thrown into water
- d) Dumping in forest

ANSWER KEYS

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