SOLUTION & ANSWER FOR KCET-2009
VERSION – A1
[BIOLOGY]

1. Which of the following hormones does ----

Ans: 2, 4 - D

Sol: 2, 4 – D is a synthetic plant growth regulator.

2. A large quantity of fluid is filtered every day by the nephrons ----

Ans: Is reabsorbed into the blood.

Sol: Only a part of the fluid is excreted along with waste material.

3. When DNA replication ---

Ans: The hydrogen bonds between the nucleotide of the two strand break.

Sol: Single stranded DNA acts as template.

4. Fleshy fruits with stony endocarp ---

Ans: Drupe.

Sol: Mango and coconut are the common examples of drupe.

5. Which statement about photosynthesis ----

Ans: The enzymes required for carbon fixation are located only in the grana of the chloroplast.

Sol: Enzymes for carbon fixation are found in stroma.

6. Darwinism explains all the ----

Ans: Variations are inherited from parents to offspring through genes.

Sol: Darwin could not explain inheritance of variation.

7. Pollen grains of a plant whose 2n = 28 are cultured to get callus ----

Ans: 14

Sol: Pollen grains are haploid.

8. A true breeding plant producing red flowers is crossed with a pure plant producing ------

Ans: $\frac{1}{4}$

Sol: In F_2 generation dominant and recessive characters appear in 3 : 1 ratio.

9. Which of the following prevents the conversion of prothrombin to thrombin ----

Ans: Heparin

Sol: Heparin is an anticoagulant.

10. The characteristic that is shared by ureas, uric acid ----

Ans: A only

Sol: Urea, uric acid and ammonia are nitrogenous waste products.

11. A RBC and a plant cell (with thick cell wall) are placed in distilled water ----

Ans: The RBC would increase in size and burst while plant cell would remain about the same size.

Sol: Endosmosis in plant cell is stopped due to the presence of rigid cell wall.

12. Which of the following hormones does not contain -----

Ans: Prostaglandins

Sol: Prostaglandins is a steroid hormone/

13. Ribose sugar is present ---

Ans: RNA and ATP.

Sol: RNA polymerase is protein.

14. Most of the endangered species are the victims ----

Ans: Habitat destruction

Sol: Habitat destruction is the main cause of extinction.

15. Damage to thymus in a child may lead ---

Ans: Loss of cell mediated immunity.

Sol: T-lymphocytes mature in thymus.

16. The diagram of the section of a maize grain is given below. ----

Ans: A – Endosperm, B – Coleoptile, C – Scutellum, D – Aleurone layer

Sol: Scutellum is the single cotyledon and aleurone layer is the protein separation layer of embryo and endosperm in monocot seed.

17. Examples for lateral meristems ---

Ans: Fascicular cambium and cork cambium

Sol: They are responsible for growth in girth.

18. Vitellogenesis occurs during the ------

Ans: Primary Oocyte in the graffian follicle.

Sol: Vitellogenisis is production of yolk

19. A bacterium is capable of withstanding extreme heat, ----

Ans: Endospore

Sol: Endospore are thick resistant structures.

20. In the absence of enterokinase, the digestion ----

Ans: Albumin

Sol: Albumin is a protein.

21. The greatest threat to genetic diversity ---

Ans: Introduction high yielding varieties.

Sol: Improved varieties lack genetic variation.

22. Nosema bombycis which cause pebrine ----

Ans: Protozoan

Sol: The disease is characterized by pepper like black spots on body.

23. Paleontologists unearthed a human skull during excavation. A small fragment of the scalp ---

Ans: Subjecting DNA to polymerase chain reaction.

Sol: PCR is a method to amplify the desired DNA.

24. Which of the following would be in insignificant ---

Ans: Sugar

Sol: Xylem mainly conduct water and mineral.

25. If the person shows the production of interferons in his ----

Ans: Measles

Sol: Measles is a viral disease.

26. The RER in the cell synthesized a protein which would be later used in building the plasma membrane ---

Ans: D

Sol: Protein are modified in golgi bodies.

27. The respiratory quotient during cellular respiration would depend on ----

Ans: Nature of substrate

Sol: RQ depends on the respiratory substrate.

28. Which of the following is not a green ---

Ans: Oxygen

Sol: CO_2, methane and water vapour are green house gases.

29. Both husband and wife have normal vision though their fathers were colour blind ----

Ans: 0%

Sol: 50% of the sons will be colour blind.

30. An animal which has both exoskeleton and -----

Ans: Tortoise

Sol: Jelly fish lack both exo and endoskeleton. Frog has only endoskeleton and fresh water mussel has only exoskeleton.

31. 2n = 16 in a primary spermatocyte which is in metaphase of first meiotic ----

Ans: 16

Sol: Secondary spermatocytes are haploid.

32. Identify the group which includes animals all of which -----

Ans: Dolphin, Kangaroo, Bat, Cat.

Sol: All are mammals.

33. Compare the statements A and B:
Statement A: Blood sugar level falls ------

Ans: Both statement A and B are correct and B is the reason for A.

Sol: Hepatotomy block supply of sugar.

34. What is /are true about heart ---

Ans: A and D

Sol: Sap wood is called alburnum which is light in colour and soft.

35. Compare the statements A and B ----
Statement A: Auxins promote apical ----

Ans: Both the statements A and B are correct and A is the reason for B.

Sol: Moriculture is mulberry culture.

36. Bryophytes resemble algae in the following aspects: ----

Ans: Thallus like plant body, lack of vascular tissues and autotrophic nutrition.

Sol: Bryophytes are non vascular plants.

37. Compare the statements A and B:
Statement A: A monocistronic mRNA can produce ------

Ans: Statement A is wrong and B is correct.

Sol: Polycistronic mRNA produce several polypeptide chain.

38. Stoma opens when -----

Ans: Guards cells swells due to a decrease in their water potential.

Sol: Water potential of guard cells decrease due to the influx of K^+ ions.

39. Which of the following is properly

Ans: Echinodermata – Asteroidea – Star fish

Sol: Spider belongs to Arachnida, unio belongs to pelecypoda and planaria belong

40. A man is admitted to a hospital. He is suffering from an abnormally ----

Ans: Hypothalamus

Sol: Hypothalamus control body temperature and thirst.

41. Identify the incorrect statement with respect to Calvin cycle
(1) the first stable -----

Ans: 18 molecules of ATP are synthesized during carbon fixation.

Sol: 18 molecules of ATP are used in carbon fixation.

42. The agents which are known to cause CJD ---

Ans: Protein particles

Sol: Creutzfeldt – Jacob Disease (CJD), is prion disease seen in humans causing degeneration of brain.

43. In crop improvement programmes, virus – free clones can be ----

Ans: Shoot apex culture

Sol: Shoot apical meristem is devoid of viral infection.

44. A person is suffering from frequent episodes of nasal discharge, -----

Ans: Rhinitis

Sol: Rhinitis is also known as hay fever.

45. Some important events in the human female reproductive -----

Ans: $A \rightarrow C \rightarrow E \rightarrow D \rightarrow B$

Sol: Human female reproductive sequence of cycle are secretion of FSH $\rightarrow$ Growth of the follicle and oogenesis $\rightarrow$ Sudden increase in the level of LH $\rightarrow$ ovulation $\rightarrow$ Growth of corpus luteum.

46. Compare the statements A and B
Statement A: Ranikhet disease is ---

Ans: Both the statements A and B are correct.

Sol: Ranikhet disease in poultry is due to the infection of *paramyxo* virus.

47. The offspring produced from a marriage have only O or A blood groups -----

Ans: $I^A I^\circ$ and $I^\circ I^\circ$

Sol: Since the offsprings are of O and A blood groups, one of the parent must be of heterozygous A blood (I^AI°) and the other of homozygous O blood ($I^\circ I^\circ$)

48. A dorsal horn is present on the -------- of mulberry ------

Ans: 8^{th} Abdominal segment

Sol: Caterpillar of silk worm possess a dorsal horn on the 8^{th} segment of thorax.

49. A plant has an androecium with monadelphous stamens, monothecous -----

Ans: *Hibiscus*

Sol: Monadelphous stamens, monothecous and reniform anther lobes are seen in malvaceae family.

50. Transpiration facilitates -----

Ans: Absorption of water by roots.

Sol: Transpiration results loss of water, which in turn cause lowering of 4W in leaves and finally into the root through the stem. This causes water absorption.

51. The cross section of the body of an invertebrate ----

Ans: Planaria

Sol: Flat worms are devoid of cavities in between the alimentary canal and body wall, hence are acoelomate.

52. In an experiment demonstrating the evolution ---

Ans: Amount of oxygen evolved increases as the availability of carbon dioxide increases.

Sol: Addition of $NaHCO_3$ causes the availability of CO_2 for photosynthesis and result more O_2 evolution.

53. Which substances is in higher concentration ----

Ans: Plasma proteins

Sol: Glomerular filtration is the first step of urine formation.

54. All the following are included under in situ ----

Ans: Botanical garden.

Sol: Botanical garden is an example for *ex situ* conservation.

55. Match the compounds given in column – 1 with the number of carbon atoms present in them which are listed under ------

Ans: A = r, B = s, C = p, D = q

Sol: Oxaloacetate – 4C compound,
Phosphoglyceraldehyde – 3C compound
Isocitrate – 6C compound,
α-ketoglutarate – 5C compound

56. Identify the correctly matched pair/pairs of the germ layers
A. Ectoderm – Epidermis -----

Ans: A, C and D only

Sol: Ectoderm – epidermis,
Mesoderm – muscles and notochord.

57. Identify the correct statement:
(1) The age of the plant can be ----

Ans: Grafting is difficult in monocot plants as they have scattered vascular bundles.

Sol: Vascular bundles with cambium is necessary for grafting and in monocot, no such cambium is present in the bundles.

58. Blood stains are found at the site of a murder ----

Ans: Leucocytes

Sol: Leucocytes are nucleated where as erythrocytes are enucleated.

59. During endocytosis,
(1) the cell digests itself -----

Ans: The cell engults and internalises materials using its membrane.

Sol: Solid substances are phagocytised by the plasma membrane and is known as endocytosis.

60. Match the names of the economically important plants (or their products) listed in ----

Ans: A = q, B = r, C = s, D = p

Sol: Sunflower – compositae (Asteraceae),
Tulsi – Labiatae (Lamiaceae),
Coffee – Rubiaceae,
Vasaka - Acanthaceae