

**SOLUTIONS & ANSWERS FOR KERALA MEDICAL ENTRANCE
EXAMINATION-2012 – PAPER II
VERSION – B1**

[BIOLOGY]

1. Ans: Keys
Sol: Key is used for identification of plants and animals.
2. Ans: Slime mould
Sol: Slime moulds show saprophytic mode of nutrition.
3. Ans: *Trypanosoma*
Sol: *Trypanosoma* causes sleeping sickness.
4. Ans: c and d alone are correct.
Sol: *Planaria* shows regeneration, *Hydra* shows budding.
5. Ans: d alone is correct
Sol: Protistans are eukaryotic.
6. Ans: a-4 b-3 c-2 d-1
Sol: All are correctly matched in option C.
7. Ans: Green, Red and Brown
Sol: Phycoerythrin is seen in red algae and fucoxanthin in brown algae.
8. Ans: 2 and 3 only
Sol: Chrysophytes have soap box like structures. Pellicle is present in euglenoids.
9. Ans: *Chlorella*
Sol: *Chlorella* is a single cell protein.
10. Ans: *Laminaria*
Sol: *Laminaria* is a brown algae.
11. Ans: Flagellum is absent.
Sol: Flagellum is absent in the gametes of rhodophyceae.
12. Ans: Bryophytes
Sol: Bryophytes require water for fertilization.
13. Ans: *Selaginella*
Sol: *Selaginella* and *Lycopodium* are members of lycopsida.
14. Ans: The PEN (Primary Endosperm Nucleus) develops into endosperm.
Sol: Endosperm development is a post fertilization event.
15. Ans: *Opuntia*.
Sol: Phyllocade is flattened in *Opuntia*.
16. Ans: Irregular and asymmetric.
Sol: Canna flower is irregular.
17. Ans: Zygomorphic, diadelphous and monocarpellary.
Sol: Fabacean members are showing diadelphous androecium.
18. Ans: a and d alone are correct.
Sol: Rhodophycean members have phycoerythrin pigment.
19. Ans: c alone is correct.
Sol: *Sequoia* is a gymnosperm.
20. Ans: I and III.
Sol: Vexillary aestivation is seen in Fabaceae.
21. Ans: Basal - Marigold
Sol: Parietal placentation is seen in argemone.
22. Ans: a - 4 b - 3 c - 2 d - 1
Sol: All the matchings are correct in option A.
23. Ans: Mesosome
Sol: Mesosomes are invagination of plasma membrane in prokaryotes.
24. Ans: Plasmodesmata
Sol: Plasmodesmata help in symplast.
25. Ans: Vinblastin
Sol: Vinblastin and curcumin are drugs.

- 26. Ans:** b and c are wrong.
Sol: Glycocalyx seen as a loose sheath is slime layer and tough is capsule.
- 27. Ans:** a - 4 b - 3 c - 2 d - 1
Sol: All options are correctly matched in option B.
- 28. Ans:** c and d alone are correct
Sol: Smooth endoplasmic reticulum is the site of lipid synthesis.
- 29. Ans:** 1 - c 2 - a 3 - d 4 - b
Sol: All are correctly matched in option A.
- 30. Ans:** b and e are correct
Sol: Crossing over takes place in Pachytene.
- 31. Ans:** 1 and 4 only
Sol: Chromatin condenses to form chromosomes in prophase.
- 32. Ans:** T. W. Engelmann - Showed that the green substance is located within special bodies in plants.
Sol: T. W. Engelmann demonstrated action spectrum.
- 33. Ans:** Capillarity and tensile strength.
Sol: Capillarity and tensile strength help in ascent of sap.
- 34. Ans:** Iron and Magnesium
Sol: Iron activates catalase enzyme.
- 35. Ans:** The bundle sheath cells contain the enzyme PEP case.
Sol: Bundle sheath cells contain RuBisCO.
- 36. Ans:** Gibberellin, Auxin and cytokinin.
Sol: Cytokinin promotes cell division.
- 37. Ans:** 2, 3 and 4 are relevant but 1 and 5 are irrelevant.
Sol: Facilitated transport is passive downhill process.
- 38. Ans:** Manganese - Needed in the splitting of water to liberate oxygen during photosynthesis.
Sol: Zinc is needed for auxin synthesis.
- 39. Ans:** c and d alone are correct.
Sol: First stable product of C₃ cycle is PGA.
- 40. Ans:** 1. Mesophyll cell 2. Bundle sheath cell
3. Fixation 4. Regeneration
5. Decarboxylation
Sol: All are correctly marked in option D.
- 41. Ans:** a, b and d alone are correct.
Sol: Respiratory quotient = $\frac{\text{Volume of CO}_2 \text{ evolved}}{\text{Volume of O}_2 \text{ consumed}}$
- 42. Ans:** Prevents loss of water.
Sol: Transpiration results in water lose.
- 43. Ans:** Cleistogamy
Sol: Cleistogamy is seen in *Comelina*, *Viola*, *Oxalis*.
- 44. Ans:** a - 4 b - 3 c - 2 d - 1
Sol: All are correctly matched in option E.
- 45. Ans:** Eyes, rhizome, bulbil, leaf bud and offset.
Sol: All are correctly matched in option C.
- 46. Ans:** 1 - b 2 - c 3 - e 4 - d 5 - a
Sol: All are correctly matched in option A.
- 47. Ans:** Promotes bolting
Sol: Bolting is promoted by gibberellins.
- 48. Ans:** Diapause
Sol: Hibernation is winter sleep and aestivation is summer sleep.
- 49. Ans:** If a predator is not efficient, then the prey population would become extinct.
Sol: If predator is not efficient the prey population will increase.
- 50. Ans:** 1 - c 2 - d 3 - a 4 - b
Sol: All are correctly matched in option A.
- 51. Ans:** Detritus is rich in lignin and chitin.
Sol: Decomposition is quicker if detritus is rich in nitrogen and sugar.

- 52. Ans:** Tree and Sea ecosystem.
Sol: A pyramid of number become inverted if the producers are less in number.
- 53. Ans:** Lichens
Sol: Lichens secrete acids which degrade rocks.
- 54. Ans:** Net primary productivity and secondary productivity respectively.
Sol: $NPP = GPP - R$
- 55. Ans:** b and c are correct.
Sol: In Delhi the entire public transport were converted into CNG.
- 56. Ans:** Cutting trees and increasing the growth of human population.
Sol: Deforestation increases global warming.
- 57. Ans:** Water (0.003 ppm), zooplankton (0.04 ppm), small fish (0.5 ppm), large fish (2 ppm), fish eating birds (25 ppm).
Sol: All are correctly matched in option B.
- 58. Ans:** 5' - GAATTC - 3'
 3' - CTTAAG - 5'
Sol: This is the restriction site for EcoRI.
- 59. Ans:** Introducing isolated gene from marrow cells producing ADA into the cells at early embryonic stages.
Sol: Permanent cure for ADA deficiency is gene therapy at early embryonic stage.
- 60. Ans:** Separation and isolation of DNA fragments.
Sol: Gel electrophoresis is separation of DNA fragments based on charge and sizes.
- 61. Ans:** (i) and (iv) alone are correct
Sol: When more individuals of a population acquire a mean character value, it is called stabilizing.
- 62. Ans:** (i)-c (ii)-d (iii)-a (iv)-b
Sol: Theory of biogenesis was proposed by Louis Pasteur.
- 63. Ans:** *Pteranodon*
Sol: *Pteranodon* was the flying dinosaur.
- 64. Ans:** Radial symmetry - Coelenterates
Sol: Aschelminthes are pseudocoelomates.
- 65. Ans:** *Testudo*
Sol: *Testudo* is poikilothermic.
- 66. Ans:** (i)-d (ii)-b (ii)-c (iv)-a
Sol: All the given organisms belong to phylum Coelenterata.
- 67. Ans:** (i) alone is wrong.
Sol: Circulatory system in arthropods is of open type.
- 68. Ans:** Taste receptors
Sol: Specialised chemoreceptors located on the anterior part of the earthworms are taste receptors.
- 69. Ans:** Hepatic caeca
Sol: Digestive juice in cockroaches is secreted by hepatic caeca.
- 70. Ans:** Sinus venosus
Sol: Sinus venosus receives blood through the vena cava in frog.
- 71. Ans:** There are ten cranial nerves only.
Sol: There are ten pairs of cranial nerves in frog.
- 72. Ans:** (i), (ii) and (v) alone are wrong.
Sol: Biceps are voluntary and striated.
- 73. Ans:** Cartilage - Areolar tissue
Sol: Cartilage is a specialised connective tissue.
- 74. Ans:** Males produce two different types of gametes.
Sol: In XO type of sex determination, some sperms carry X chromosomes and some others have no sex chromosomes at all.
- 75. Ans:** (iii) and (v) alone are wrong
Sol: Two nucleosides are linked through 3' - 5' phosphodiester linkage.
- 76. Ans:** Alfred Sturtevant.
Sol: Alfred Sturtevant was the first to construct chromosome map.

- 102.Ans:** Lipases and nucleases are not present in pancreatic juice.
Sol: Lipases and nucleases are present in pancreatic juice.
- 103.Ans:** Utilisation of CO₂ by cells for catabolic reactions.
Sol: Utilisation of O₂ by cells for catabolic reactions.
- 104.Ans:** Carbonic anhydrase
Sol: Carbonic anhydrase is essential for the transport of CO₂ as bicarbonates.
- 105.Ans:** In a standard ECG, a person is connected to the machine with three electrical leads.
Sol: Of the three electrical leads, two are connected to each wrist and one to the left ankle.
- 106.Ans:** In ureotelic organisms, ammonia is not a product of metabolism.
Sol: In ureotelic organisms ammonia is converted to urea in the liver.
- 107.Ans:** (iii) and (iv) alone are wrong
Sol: Patella covers the knee ventrally.
- 108.Ans:** Osteoporosis
Sol: Decreased levels of estrogen is a common cause for osteoporosis.
- 109.Ans:** Portion of myofibril between two successive 'Z' lines.
Sol: In a muscle the functional unit of contraction is sarcomere.
- 110.Ans:** Presence of ketone bodies in urine is an indicator of diabetes mellitus.
Sol: Glycosuria and ketonuria are indicators of diabetes mellitus.
- 111.Ans:** 1-d-iii 2-c-iv 3-b-l 4-a-ii
Sol: Pineal gland is known as biological clock.
- 112.Ans:** Only during pregnancy.
Sol: hCG, hPL and relaxin are produced only during pregnancy.
- 113.Ans:** GIFT - Transfer of embryos with more than 8 blastomeres into the fallopian tube.
Sol: GIFT is the transfer of gametes into the fallopian tube.
- 114.Ans:** Primary spermatocytes.
Sol: Primary spermatocytes divides meiotically to produce two secondary spermatocytes.
- 115.Ans:** $\log S = \log C + Z \log A$
Sol: Species area relationship is explained by Alexander Von Humbott.
- 116.Ans:** Carrot grass - Lantana
Sol: Carrot grass is *Parthenium*.
- 117.Ans:** By inbreeding purelines cannot be evolved.
Sol: Inbreeding results in pure lines.
- 118.Ans:** Biofortification
Sol: Golden rice is a biofortified rice.
- 119.Ans:** Passive immunity
Sol: Passive immunity gives immediate immune responses.
- 120.Ans:** Streptokinase
Sol: Clot buster is used to remove blood clots.