

Viharamahadevi Balika Vidyalaya
4th Unit – Plant form and Function
Biology – Structured essay and essay - 04

NB :

- * **This questioner is prepared for English medium Students.**
- * **Before answering for the questions go through your Resource book.**
- * **Then answer for the all questions.**
- * **At the end of the answering compare your answers with the Resource book and if there is mistake you should correct using Resource book.**
- * **If you reach any difficulty relate with subject matters contact your Biology teacher.**

43. Briefly explain what heart wood and sap wood are.

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44. What happens to old secondary phloem when a plant further undergoes secondary growth?

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45. What is the difference between hard wood and soft wood?

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48. Briefly explain how to calculate the age of a tree using growth rings.

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Shoot architecture and light capture

49. Length of the stem and branching pattern are designed to capture maximum light. Briefly explain this statement.

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50. What is the difference between the sizes of leaves of the plants those grow in rain forests and very cold environment?

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51. What is called phyllotaxy?

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52. Why do some plants have vertically arranged leaves?

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Process of Gaseous Exchange in plants

Essay

53.

- Describe the anatomy of typical dicot leaves.
- Explain how anatomy of monocot leaves differ from anatomy of dicot leaves.

54.

- Describe the structure of stomata.
- Describe the mechanism of opening and closing of stomata.
- What is the role of ABA in stomatal closure in drought?

55. What are the main structures used for the gaseous exchange in plants?

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Acquisition of water and minerals

57. Briefly explain why plants need transportation of water and minerals?

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58. What is called active transport of materials?

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59. What are the methods of passive transport of water and solutes for short distance in a plant?

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60. What is the method of passive transport that uses to transport water and solute for long distance in a plant?

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61. Complete the following table using correct method of transport.

Method of transport	Nature of the method of transport
	Physical adsorption of water molecules by hydrophilic materials.
	Diffusion of free water molecules across a selectively permeable membrane.
	In the absence of other forces, the movement of molecules of a substance from a place where it is more concentrated to place where it is less concentrated due to random motion of molecules.
	Movement of liquid and materials in response to pressure gradient.
	Movement of water and hydrophilic solutes across the membranes passively with the help of transport proteins that span the membrane.

62. What is meant by water potential?

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63.

a. What are the factors affecting water potential of a solution?

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b. Write an equation to obtain water potential of a solution using above mentioned factors.

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64. "Physical pressure of a solution of a plant is possible to be a negative value relative to atmospheric pressure". Briefly explain that statement using an appropriate example.

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65. A vacuolated cell with incipient plasmolysis state was immersed in pure water and allowed it to reach equilibrium state. Explain using water potential concept, what happens to the cell from the moment of the cell being immersed till the equilibrium state.

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Essay

66. Describe the movement of water and minerals from soil solution to root hair of plant root.

67.

(a). What is meant by radial transport of water and minerals?
(b). Describe how radial transport of water and minerals occurs.

68. Describe the upward movement of water and minerals in a plant.

* See the Appendix - 02

* Appendix - 02

