EXERCISE – I (Conceptual Question) **Build Up your Understanding**

MERISTEM TO VASCULAR BUNDLES

1. A meristem may be defined as the group of cells which -
(1) Does not divide
(2) Conserve food
(3) Divide continuously to give rise to new cells.
(4) Elongate, mature and add to the group of cells.

2. Histogens are components of –
(1) Apical meristem (2) Intercalary meristem
(3) Lateral meristem (4) Secondary meristem

3. In monocotyledon roots, the histogen present at the apex of the root tip is
(1) Dermatogen (2) Procambium (3) Calyptrogen (4) Plerome

4. Root cap is not found in –
(1) Hollyhock (2) Pistia (3) Sunflower (4) China rose

5. How many histogens are present in monocot root apex.
(1) 1 (2) 2 (3) 3 (4) 4

6. The secondary meristem originates from-
(1) Promeristem (2) Primary meristem
(3) Primary permanent tissue (4) Secretory tissue

7. The function of root cap is-
(1) Provide protection to root apex (2) Storage of food products
(3) Absorption of nutrients (4) None of the above

8. In quiescent zone, DNA content is-
(1) High (2) Low (3) Very high (4) Balanced

9. Meristem present at lamina margin is :
(1) Apical meristem (2) Intercalary meristem
(3) Mass meristem (4) Marginal meristem

10. Chlorenchyma is
(1) Chlorophyll containing parenchyma
(2) Mechanical tissue between two successive leaf primordial
(3) Region of origin of root branch
(4) Region of origin of stem branch

11. Aerenchyma is helpful to plants by -

(1) Providing buoyancy to hydrophytes (2) Promoting photosynthesis
(3) Give mechanical strength to plants (4) Giving flexibility to plants

12. Function of collenchyma is-
(1) Photosynthesis (2) Mechanical support
(3) Both (4) Secretion

13. In plants, which of the following cells are living
(1) Xylem vessels (2) Meristem (3) Cork (4) Fibers

14. Which of the following tissues form the main bulk of storage organ -
(1) Parenchyma (2) Collenchyma (3) Sclerenchyma (4) Aerenchyma

15. Pulp of a fruit is made up of mainly
(1) Parenchyma (2) Collenchyma (3) Sclereids (4) Meristem

16. Mechanical tissue consisting of living cells is –
(1) Sclerenchyma (2) Collenchyma (3) Chlorenchyma (4) Parenchyma

17. Collenchyma differs from sclerenchyma in –
(1) Retaining protoplasm at maturity (2) Having thick walls
(3) Having a wide lumen (4) Being meristematic

18. Which of the following tissue provide tensile strength to young dicot stem against bending & swaying
(1) Parenchyma (2) Collenchymas (3) Sclerenchyma (4) Sclereids

19. Which of the following plant organs do not contain collenchymas
(1) Monocot root (2) Monocot stem (3) Dicot Root (4) All of the above

20. Cell walls of sclerenchymatous cells have large percentage of –
(1) Cellulose (2) Pectin (3) Lignin (4) Silica

21. Which of the following plant cell are without vacuoles without and are dead –
(1) Cambium cells (2) Xylem vessels (3) Root hairs (4) Companion cells

22. Maximum bordered pits are found in tracheids of –
(1) Monocotyledons (2) Dicotyledons (3) Pteridophytes (4) Gymnosperms

23. The cell functionally associated with sieve tube element is -
(1) Phloem fibres (2) Phloem Parenchyma
(3) Companion cell (4) Collenchyma

24. Bast fibres are mostly found in –
(1) Secondary xylem (2) Secondary phloem (3) Primary phloem (4) Primary xylem

25. Vessels and companion cells are respectively present in the xylem and phloem of
(1) Gymnosperm (2) Pteridophyte (3) Angiosperm (4) Bryophyta

26. Phloem parenchyma is absent in –
(1) Dicot stem (2) Dicot leaf (3) Monocot stem (4) Dicot root

27. Edible part of pear fruit is gritty due to –
(1) Collenchyma (2) Xylem fibres (3) Sclereieds (4) Sclerenchymatous fibres

28. Thickenings in collenchymas is mainly due to deposition of –
(1) Cellulose (2) Pectin (3) Lignin (4) Suberin

29. The chief function of a xylem vessel in a plant body is to –
(1) Conduct sap (2) Conduct mineral salts only
(3) Eliminate excess of water at night (4) Translocate organic nutrients

30. End walls of tracheids and vessels respectively are
(1) Pitted & perforated (2) Perforated & pitted
(3) Both perforated (4) Both pitted

31. Quiescent centre theory was proposed by
(1) Schuepp (2) Hanstein (3) Clowes (4) Nageli

32. Long pointed sclerenchyma cells are
(1) Fibres (2) Tracheae (3) Wood parenchyma (4) Sclereids

33. Sieve tubes are characterised by
(1) Absence of septa (2) Simple oblique septa
(3) Perforated longitudinal walls (4) Perforated oblique septa (Sieve plate)

35. P-protein is a constituent of
(1) Sieve tube elements (2) Xylem parenchyma
(3) Parenchyma (4) Peri cycle

35. When xylem and phloem are on same radius, the vascular bundles are said to be –
(1) Radial (2) Conjoint (3) Concentric (4) Exarch

36. A vascular bundle in which phloem is present on both the sides of the xylem and separated from it by strips of cambium is said to be –
(1) Collateral open (2) Bicollateral open (3) Concentric (4) Bicollateral closed

37. A concentric amphivasal vascular bundle is that in which –
(1) Centrally located xylem is surrounded by phloem
(2) Centrally located phloem is surrounded by xylem
(3) Phloem is flanked by xylem on interior side only
(4) Xylem is flanked by phloem on exterior side only

38. Amphivasal vascular bundles are found in –
(1) Cycas and Dryopteris (2) Dracaena and Yucca
(3) Helianthus and Cucurbit (4) Maize and wheat

39. The basic difference between stem and root is that xylem in stem is –
(1) Endarch (2) Exarch (3) Mesarch (4) Polyarch

40. Which xylem element is living :-
(1) Vessels (2) Tracheids (3) Fibre (4) Parenchyma

PRIMARY INTERNAL STRUCTURE TO SECONDARY GROWTH

41. A tissue of epiphytes which is capable of absorbing water from air is known as –
(1) Cork (2) Velamen (3) Epiblema (4) Hypodermis

42. Velamen tissue is found in –
(1) Breathing roots of halophytes (2) Parasitic plants
(3) All aerial roots (4) Aerial roots of epiphytic orchids

43. Collenchymatous hypodermis is characteristic feature of –
(1) Dicot stem (2) Monocot stem
(3) Monocot as well as dicot stem (4) Hydrophytes

44. Innumerable (many) vascular bundles, lack of cambium and lack of a well demarcated pith is found in –
(1) Sugarcane, Grass (2) Sunflower, Neem (3) Radish, Neem (4) Pea, Peepal

45. Cortex and pith are not distinguished in –
(1) Monocot stem (2) Monocot root (3) Dicot stem (4) Dicot root

46. What is the characteristics of a vascular bundle of monocot stem –
(1) Open and surrounded by a sclerenchymatous bundle sheath
(2) Closed and not surrounded by bundle sheath
(3) Closed and surrounded by bundle sheath
(4) Open and not surrounded by a bundle sheath

47. In dicot root
(1) Vascular bundles are scattered with cambium
(2) Vascular bundles are open and arranged in a ring
(3) Xylem and phloem are radial
(4) Xylem is always end arch

48. A dicot root differs from a monocot root in which of the following –
(1) Presence of piliferous layer
(2) Presence of exodermis
(3) Presence of ill-developed (Poorly developed) pith
(4) Separate radial vascular bundle

49. Polyarch and exarch vascular bundles are the characteristic of-
(1) Dicot stem (2) Dicot root (3) Monocot stem (4) Monocot root

50. Water cavity & V or Y-shaped xylem occurs in-

(1) Dicot stem (2) Monocot root (3) Monocot stem (4) Dicot root

51. In which of the following order, an exarch xylem develops –
(1) Centripetal (2) Centrifugal
(3) Both centripetal & centrifugal (4) Irregular

52. Hard bast (Bundle cap) occurs in –
(1) Sunflower stem (2) Wheat stem (3) Sunflower root (4) 1 & 3 both

53. Vascular bundles in Cucurbita stem are –
(1) Bicollateral & open (2) Bicollateral & closed
(3) Collateral & open (4) Amphivasal

54. Position of xylem & phloem in leaf respectively-
(1) Abaxial & Adaxial (2) Adaxial & Abaxial
(3) Both Adaxial (4) Both abaxial

55. The function of hypodermis is
(1) Protection (2) Hardness
(3) Mechanical support (4) Storage

56. In leaves, the vascular bundles are
(1) Bicollateral & open (2) Collateral & open
(3) Collateral & closed (4) Radial & exarch

57. Vascular bundles are found scattered in ground tissue in –
(1) Maize stem (2) Sunflower stem (3) Gram root (4) Isobilateral leaf

58. The hypodermis present in maize stem is –
(1) Parenchymatous (2) Collenchymatous (3) Sclerenchymatous (4) Meristematic

59. Passage cells are found in endodermis of-
(1) Dicot stem (2) Monocot stem (3) Orchid stem (4) Monocot root

60. Pith is produced by
(1) Ground meristem (2) Procambium (3) Periblem (4) Dermatogen

61. Sugar transport elements of gymnosperms & pteridophytes are –
(1) Sieve cells (2) Sieve elements (3) Sieve tubes (4) Sieve tube elements

62. When protoxylem faces pericycle, it is called
(1) Endarch (2) Mesarch (3) Exarch (4) Polyarch

63. Which wood conduct sap-
(1) Heart wood (2) Sapwood
(3) Wood with lots of fibres and tyloses (4) All of the above

64. Phelloderm is formed by –

(1) Vascular cambium (2) Phellogen
(3) Fascicular cambium (4) Interfascicular cambium

65. Dendrochronology is the study of determination of-
(1) Height of a tree
(2) Diameter of a tree
(3) Age of a tree with the help of annual rings
(4) Counting of the number of branches

66. A timber merchant told his customer that log of wood which he was purchasing comes from a 20 years old tree, he told so by inspecting the –
(1) Diameter of log (2) Thickness of the heart wood
(3) Number of cork layers (4) Annual rings

67. Annual rings are well demarcated in trees growing in-
(1) Shimla (2) Bombay / Delhi (3) Madras (4) Udaipur

68. In trees, the annual rings represent
(1) Primary xylem (2) Secondary xylem (3) Secondary phloem (4) Cambium

69. Annual rings are the bands of –
(1) Secondary cortex and cork (2) All secondary vascular tissue
(3) Secondary xylem and xylem rays (4) Secondary phloem and medullar rays

70. Growth rings are formed due to the activity of-
(1) Intrastelar cambium (2) Intercalary cambium
(3) Extrastelar cambium (4) Primary cambium

71. When a tree grows older which of the following increased rapidly –
(1) Heart wood (2) Sapwood (3) Pith (4) Cortex

72. Lenticels do not occur on-
(1) Stem (2) Root (3) Leaf (4) Fruit

73. External protective tissues are-
(1) Cortex and epidermis (2) Cork and epicycle
(3) Cortex and epicycle (4) Cork and epidermis

74. Which of the following provide maximum mechanical strength to a tree trunk.
(1) Heart wood (2) Sapwood (3) Cork (4) Late wood

75. Youngest layer of secondary xylem is located
(1) In the centre of stem (2) Just outside the pith
(3) Just outside the vascular cambium (4) Just inside the vascular cambium

76. Extra stelar secondary growth in dicot stem occurs due to the activity of
(1) Intrafasdcular cambium (2) Interfasdcular cambium

(3) Vascular cambium (4) Cork cambium

77. Living tissue in lenticel is called
(1) Conjunctive tissue (2) Connective tissue
(3) Complementary tissue (4) Phelloderm

78. Normally secondary growth takes place in-
(1) Dicots& Monocots (2) Gymnosperms & Monocots
(3) Dicots & Gymnosperms (4) Only in dicots

79. Select true statements :-
(a) Lenticels are absent in w.oody climbers and leaves
(b) Lenticels occur in most woody trees
(c) The spring wood is lighter in colour and has a lower density
(d) The sap wood also called as duramen
(1) a, band c are correct (2) a and b are correct
(3) b and d are correct (4) a and c are correct

80. Formation of which tissue is example of dedifferentiation
(1) Interfasdcular cambium (2) Apical meristem
(3) Intrafasdcular cambium (4) Intercalary meristem

81. What happens to primary phloem in stem after sec growth
(1) Compresses outside and degenerates (2) Compresses inside and degenerates
(3) Becomes part of sec phloem (4) Modifies in sclerenchyma

82. Which tissue remains more active during spring
(1) Cork cambium (2) Vascular cambium
(3) Parenchyma (4) Sclerenchyma

83. Water conduction in stem of tree takes place mainly by –
(1) Duramen (2) Sapwood (3) Primary xylem (4) All of the above

84. How many types of cells are present in vascular cambium of dicot stem
(1) Two types, fusiform & ray initial (2) Only fusiform initial
(3) Only ray initial (4) Three types fusiform, ray and medullary rays.

85. Cork cambium is
(1) Always primary meristem (2) Always secondary meristem
(3) May be secondary or primary meristem (4) Partly primary & partly secondary meristem

86. Normally in dicot stems, phellogen develops from
(1) Hypodermis (2) Phellem
(3) Endodermal cells (4) Epidermal & pericycle cells

87. Suberin in chiefly deposited in the cells of
(1) Sclerenchyma (2) Collenchyma (3) Cork (4) Phelloderm

88. Which of the following is a meristematic tissue
(1) Phellem (2) Phellogen (3) Phelloderm (4) Periderm

89. Sea shore trees do not show annual rings because
(1) There is little climatic variations (2) They belong to monocots
(3) There is low temperature (4) Soil is sandy

90. Secondary growth in dicots and gymnosperms occurs by
(1) Formation of vascular rays
(2) Thickening of tracheary elements
(3) Formation of meristematic cells in vascular region
(4) Development of meristematic cells in vascular & cortical regions

91. The balloon like outgrowths of parenchyma in the lumen of a vessel are known as
(1) Histogen (2) Tyloses (3) Phellogen (4) Tunica

92. Which of the following tissues originate from ray initials of cambium
(1) Tracheids & vessels (2) Sieve tubes & companion cells
(3) Xylem & phloem fibres (4) Radial rows of parenchyma

93. Cork is an excellent material for making bottle stopper because it is
(1) Cheap (2) Easily available (3) Air tight (4) Light

94. In monocot stems, secondary growth cannot occur because vascular bundles are
(1) Scattered (2) Open (3) Closed (4) Radial

95. Gymnosperm wood is non porous because it
(1) Lacks vessels (2) Contains tracheae
(3) Has abundant fibres (4) Contains no fibres

96. Porous wood is characterised by
(1) Absence of tracheids (2) Presence of vessels
(3) Absence of vessels (4) Presence of sieve-tubes

97. Outer part of bark is
(1) Epidermis (2) Rhytidome (3) Phelloderm (4) Lenticel

98. Secondary growth is the production of
(1) New tissues from intercalary meristem (2) New conduction cells
(3) New tissues from lateral meristem (4) New ground cells

99. Each annual ring consists of two strips of
(1) Autumn & spring wood (2) Heart wood & sap wood
(3) Xylem and phloem (4) Cork & cortex

100. Intrafascicular cambium is situated
(1) In between the vascular bundles (2) Inside the vascular bundles
(3) Outside the vascular bundles (4) In pith

101. An example of monocots showing secondary growth in stem is
(1) Lilium (2) Pea (3) Asparagus (4) Yucca

102. Vascular tissue having abundant vessels and fibers is
(1) Primary xylem (2) Secondary xylem (3) Protoxylem (4) Metaxylem

103. Amount of secondary xylem as compared to secondary phloem formed every year is
(1) Equal (2) 8-1 0 times (3) Half (4) 4-5 times

104. Monocot root is differ from dicot root in having:
(1) Open vascular bundle (2) Scattered vascular bundle
(3) Large pith (4) Radial vascular bundle

105. Which one increases due to cambium:
(1) Length (2) Width (3) Circumference (4) None

106. Autumn wood can be differentiated from spring wood by:-
(1) Broad vessels and tracheids (2) Narrow vessels and tracheids
(3) Red colour of xylem (4) Cambium

107. In which plant palisade tissue is present on both sides of leaves:-
(1) Nerium (2) Eucalyptus (3) Both (1) & (2) (4) None

108. Vascular cambium forms:-
(1) Secondary xylem & Secondary phloem (2) Primary xylem & Primary Phloem
(3) Only Secondary phloem (4) Only Primary xylem

109. There is no result of 'Girdling Experiment' in monocot plants, due to :
(1) Presence of wax layer on the surface of its stem
(2) Stem is comparatively thin
(3) Phloem is inside xylem
(4) Vascular bundles are not in specific position

110. Collateral, open vascular bundle and Eustele is present in :-
(1) Dicot stem (2) Monocot stem (3) Monocot root (4) Dicot Root

111. Radial Vqscular bundles are found in :
(1) Only dicot root (2) Only monocot root
(3) Only Pteridophyta (4) Roots of vascular plants

112. Casparian strip is found in :-
(1) Epidermis (2) Endodermis (3) Endothecium (4) Endothelium

ANSWER KEY

EXERCISE-II (Previous Year Question)

1.	(3)	**2.**	(1)	**3.**	(3)	**4.**	(2)	**5.**	(4)	**6.**	(3)	**7.**	(1)
8.	(2)	**9.**	(4)	**10.**	(1)	**11.**	(1)	**12.**	(3)	**13.**	(2)	**14.**	(1)
15.	(1)	**16.**	(2)	**17.**	(1)	**18.**	(2)	**19.**	(4)	**20.**	(3)	**21.**	(2)
22.	(4)	**23.**	(3)	**24.**	(2)	**25.**	(3)	**26.**	(3)	**27.**	(3)	**28.**	(2)
29.	(1)	**30.**	(1)	**31.**	(3)	**32.**	(1)	**33.**	(4)	**34.**	(1)	**35.**	(2)
36.	(2)	**37.**	(2)	**38.**	(2)	**39.**	(1)	**40.**	(4)	**41.**	(2)	**42.**	(4)
43.	(1)	**44.**	(1)	**45.**	(1)	**46.**	(3)	**47.**	(3)	**48.**	(3)	**49.**	(4)
50.	(3)	**51.**	(1)	**52.**	(1)	**53.**	(1)	**54.**	(2)	**55.**	(3)	**56.**	(3)
57.	(1)	**58.**	(3)	**59.**	(4)	**60.**	(1)	**61.**	(1)	**62.**	(3)	**63.**	(2)
64.	(2)	**65.**	(3)	**66.**	(4)	**67.**	(1)	**68.**	(2)	**69.**	(3)	**70.**	(1)
71.	(1)	**72.**	(3)	**73.**	(4)	**74.**	(1)	**75.**	(4)	**76.**	(4)	**77.**	(3)
78.	(3)	**79.**	(1)	**80.**	(1)	**81.**	(1)	**82.**	(2)	**83.**	(2)	**84.**	(1)
85.	(2)	**86.**	(1)	**87.**	(3)	**88.**	(2)	**89.**	(1)	**90.**	(4)	**91.**	(2)
92.	(4)	**93.**	(3)	**94.**	(3)	**95.**	(1)	**96.**	(2)	**97.**	(2)	**98.**	(3)
99.	(1)	**100.**	(2)	**101.**	(4)	**102.**	(2)	**103.**	(2)	**104.**	(3)	**105.**	(3)
106.	(2)	**107.**	(3)	**108.**	(1)	**109.**	(4)	**110.**	(1)	**111.**	(4)	**112.**	(2)