TOPIC: HISTOLOGY OF PLANTS AND ANIMALS
Time: 2 ½ hours
Attempt all questions in this paper

SECTION	MARKS
A	
B	
TOTAL	

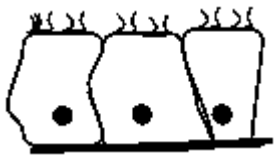
SECTION A (40MARKS)

1. What is absent in connective tissue?
   A. Hyaluronic acid
   B. Basement membrane
   C. Collagen fibres
   D. Liquid
2. Which of the following epithelium tissues line blood capillaries?
   A. Cuboidal tissue
   B. Squamous tissue
   C. Columnar tissue
   D. Glandular tissue
3. The figure below shows a glandular tissue

   In which part of the mammalian body is the tissue likely to be?
   A. Stomach
   B. Skin
   C. Lungs
   D. Ileum
4. Which one of the following consists of a pair of tissues specialized for support?
   A. Parenchyma and collenchyma
   B. Collenchyma and sclerenchyma
   C. Parenchyma and sieve tubes
   D. Xylem and phloem
5. One disadvantage of multicellular state is the individual cells
   A. Are always small in size
   B. Lose independence
   C. Becomes less functional
   D. Become less specialized
6. The walls of collenchyma cells stained deep blue by methylene blue but not aniline hydrochloride. This shows that the wall
   A. Are not thickened
   B. Are thickened by lignin
   C. Contains living protoplasm
   D. Are thickened by material other than lignin
7. Choose the correct statement from the following
   A. Each lacuna has fine cytoplasmic extension called lamellae which pass through canaliculi
   B. The structural unit f a bone is harversian system
   C. Harversian system contains artery, vein and lymph
   D. Lacunae containing osteocytes are arranged concentrically around the Volkmann's canal
8. Which of the following statements is true for epithelial tissue?
   A. They arise only from the ectoderm
   B. Their free surface either faces a body fluid or the outside environment
   C. They have large amount of intercellular matrix
   D. They are incapable of performing absorptive functions.
9. The non-cellular basement membrane of epithelium is secreted by
   A. Epithelium
   B. Connective tissue
   C. Fibroblasts
   D. Tissue fluid
10. Which of the following is not correct about cells of a tissue?
    A. Are of one type
    B. Have the same origin
    C. Have same particular function
    D. Are physically linked
11. The correct statement about microvilli and cilia is
    A. Columnar cells may have microvilli or cilia but cuboidal cells may have only microvilli
    B. Cuboidal cells may have microvilli or cilia but columnar cells may have only microvilli
    C. Cuboidal cells may have microvilli or cilia but columnar cells may have only cilia
    D. Both cuboidal cells and columnar cells may have microvilli or cilia
12. Which of the following is a simple branched tubular gland?
    A. Brunner's gland
    B. Salivary gland
    C. Sweat gland
    D. Mammary gland
13. On the basis of the mode of pouring of their secretions, glands are classified as
    A. Exocrine and heterocrine
    B. Apocrine and holocrine
    C. Exocrine and endocrine
    D. Endocrine and apocrine
14. Which one of the following tissues has the least power of regeneration?
    A. Blood tissue
    B. Epithelial tissue
    C. Bone tissue
    D. Nerve tissue

15. Which one of the following structures is found in both xylem and phloem in higher plants?
    A. Sieve tracheid
    B. Parenchyma cells
    C. Companion cells
    D. Hollow vessels
16. Which of the following have a sole function of offering support to the plants?
    A. Sclerenchyma and vessel elements
    B. Vessel elements and tracheid
    C. Sclerenchyma and collenchyma
    D. Parenchyma and collenchyma
17. Difference between tendon and ligament is that
    A. Tendon is dense regular connective tissue with mainly collagen fibres while ligament is dense irregular connective tissue with mainly elastin fibres.
    B. Tendon is dense irregular connective tissue with mainly collagen fibres while ligament is dense irregular connective tissue with mainly elastin fibres.
    C. Tendon is dense regular connective tissue with mainly collagen fibres while ligament is dense regular connective tissue with mainly elastin fibres.
    D. Tendon is dense irregular connective tissue with mainly collagen fibres while ligament is dense irregular connective tissue with mainly elastin fibres.
18. In columnar epithelium, nuclei are located
    A. At the base
    B. In the centre
    C. Near the apex
    D. At the basement membrane
19. A plant tissue which is tubular, open ended, with lignified and thickened walls is
    A. Tracheid
    B. Xylem vessel
    C. Parenchyma
    D. Sieve tube
20. Which one of the following statements if correct?
    A. The main function of squamous tissue is secretion and absorption
    B. Proximal convoluted tubule of nephron has epithelium with cilia
    C. Formation of diffusion boundaries is the main function of columnar tissue
    D. Squamous tissue has irregular boundaries
21. Which one of the following types of epithelia experiences the highest wearing?
    A. Stratified
    B. Columnar
    C. Glandular
    D. Ciliated
22. How many of the following statements are correct?
    - Epithelial tissue imparts protection from mechanical injury
    - Modified epithelial cells are useful in metabolic activities
    - Modified epithelial cells carry out absorption
    - Epithelial cells remove excess toxins from the body

    A. 1
    B. 2
    C. 3
    D. 4
23. What is the germ layer that forms maximum types of tissues?
    A. Ectoderm
    B. Mesoderm
    C. Endoderm
    D. Mesoglea
24. Which of the following gland is compound saccular?
    A. mammary gland
    B. sebaceous gland
    C. sweat gland
    D. gastric gland
25. Which of the following cell types are unlikely to be found in the mammalian intestines?
    A. Columnar
    B. Ciliated
    C. Stratified
    D. Squamous
26. Which one of the following glands has a compound tubular structure?
    A. Mucus gland in the skin of frog and other amphibians
    B. Salivary gland in the mouth of a mammal
    C. Brunner's gland in the walls of a mammalian small intestine
    D. pancreas
27. What is called the cell of bone?
    A. Chondroblast
    B. Osteoblast
    C. Lacuna
    D. Osteocyte
28. Pseudo-stratified ciliated columnar epithelium is commonly associated with
    A. Digestive system
    B. Respiratory system
    C. Excretory system
    D. Reproductive system
29. Cells with uniformly thickened and lignified walls are likely to be
    A. Phloem
    B. Parenchyma
    C. Collenchyma
    D. Sclerenchyma
30. Which one of the following plant tissues perform both storage and support functions?
    A. parenchyma
    B. sclerenchyma
    C. collenchyma
    D. phloem
31. The figure below shows an epithelial tissue



The function of the tissue is to
A. Increase surface area for absorption of material
B. Provide smooth lining for movement of materials
C. Act as a junction between different tissues
D. Move materials along the surface

32. Which one of the following properties is found in all connective tissues? All have
A. either collagen fibres or elastin fibres or both
B. either collagen fibre or elastin but never both
C. matrix made up of modified polysaccharide
D. cells which perform phagocytosis

33. A companion cell has a large nucleus because
A. It supports the sieve tube element which has no nucleus
B. It controls a large volume of cytoplasm
C. Movement of material in the sieve tube is active process D.
D. of its high metabolic rate

34. which white blood cells has the highest amount in blood?
A. Neutrophils
B. Eosinophils
C. Basophils
D. Lymphocytes

35. Which one of the following tissues would be stained deepest red by a dye that stains nucleic acid?
A. Sieve tube
B. Tracheid
C. Collenchyma
D. cambium

36. Which one of the following plant tissues, have cell with walls least adapted to support?
A. Sclerenchyma
B. Collenchyma
C. Tracheid
D. Xylem vessels

37. A young herbaceous stem maintains an erect position mainly due to
A. Lignified tissue in the stem
B. Water pressure in xylem tissue
C. High turgor pressure in the parenchyma cells
D. Low osmotic pressure in the parenchyma cells

38. In sponges, the different types of cells are independent of each other in function because
A. The different cells show division of labor
B. Collar cells maintain the flow of water
C. Sponges are made of collar flagellates
D. The cells are not coordinated

39. Which one of the following parts would show a distinct blue color if a cross section of a dicotyledonous plant was stained with iodine solution?
A. Pericycle
B. Piliferous layer
C. Endodermis
D. pith

40. White blood cells are true cells because
A. nucleus is present
B. acts as a phagocyte
C. it is polymorphic
D. none of the above

SECTION B (60MARKS)

41.(a) Why is areolar tissue described as a
(i) Loose connective tissue? (2marks)

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(ii) Packing tissue? (1mark)

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(b) State the function of the following components of the areolar tissue.
(i) Mast cells (3marks)

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(ii) Fibroblast cells (2marks)

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(c) Explain how the fibres in areolar tissue attribute its mechanical properties in the body. (2marks)

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42. (a) Name two areas in plants where each of the following tissue is found?

(i) Sclerenchyma (1mark)

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(ii) Collenchyma (1mark)

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(b) Give three structural adaptation of the sclerenchyma tissue for its function (3marks)

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(c) Explain the importance of collenchyma tissue in leaves and young stems. (2marks)

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(d) Outline three structural differences between the collenchyma and sclerenchyma tissue. (3marks)

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43. (a) What are the structural differences between granulocytes and agranulocytes? (3marks)

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(b) State the location and function of the following cells in the mammalian body.

(i) Lymphocyte (4marks)

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(ii) Neutrophils (3marks)

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44. (a) Describe the adaptations of each of the following tissues for their functions, giving one example of the site where each of them is found.

(i) Stratified tissue. (3marks)

Location

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Adaptations

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(ii) Collagen tissue (3marks)

Location

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Adaptations

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(b) Explain how the structure of proteins enable them to form body tissues and structures. (4marks)

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45. (a) State three features of glandular cells. (3marks)

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(b) State the types of epithelial tissue present in the following structures and its function.
(i) Skin (2marks)

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(ii) Conjunctiva (3marks)

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(c) How is the tissue lining the fallopian tubes adapted to its function? (2marks)

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46. (a) How is the structure of the sieve tube cells and xylem vessels differ? (4marks)

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(b) Explain what causes the physical nature of xylem tissue. (3marks)

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(c) What makes companion cells suit their function in the plant? (3marks)

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END