

2022

ZOOLOGY

(Honours)

Paper Code : V - A & B

**[Histology and Histochemistry &
Microscopy and Analytical Techniques]**

(New Syllabus)

Full Marks : 50

Time : Two Hours

Paper Code : V - A

(Marks : 10)

Choose the correct answer.

Each question carries 1 Mark.

1. Kupffer cells are found in —
 - (A) Kidney
 - (B) Lungs
 - (C) Liver
 - (D) Pancreas
2. Cortisol is released from —
 - (A) Zona reticulata
 - (B) Zona glomerulosa
 - (C) Zona fasciculata
 - (D) Adrenal medulla
3. Type of microscopy used to study the surface structure of cell is —
 - (A) SEM
 - (B) TEM
 - (C) Light microscope
 - (D) Compound microscope

4. Living unstained cells and organisms can be observed using —
- (A) TEM
 - (B) Fluorescent microscopy
 - (C) SEM
 - (D) Phase contrast Microscopy
5. PAS is a staining method used to detect —
- (A) Proteins
 - (B) Lipids
 - (C) C.DNA
 - (D) Polysaccharides
6. The technique electrophoresis was developed by —
- (A) Tiselius
 - (B) Sanger
 - (C) Tswett
 - (D) Svedberg
7. Dichroic mirror is used in —
- (A) Simple microscope
 - (B) Phase contrast microscope
 - (C) Electron microscope
 - (D) Fluorescence microscope
8. A substance that forms an insoluble complex with stain and serves to fix the color is called —
- (A) Fixative
 - (B) Intensifier
 - (C) Mordant
 - (D) none of the above

9. Hilum is seen in —

- (A) Liver
- (B) Testis
- (C) Kidney
- (D) Thyroid

10. Cornified stratified squamous epithelium is found in —

- (A) Skin
 - (B) Muscle
 - (C) Epididymis
 - (D) Seminiferous tubules
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(4)

Paper Code : V - B

(Marks : 40)

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Unit - I : Histology and Histochemistry

1. Answer any *two* questions : 4×2=8
- (a) Write the functions of Sertoli cells and Leydig cells.
 - (b) What is IHC ? State the composition of Delafield's haematoxylin.
 - (c) Classify fixatives, with example, on the basis of chemical nature or reaction.
 - (d) Elucidate the histological details of mammalian thyroid gland.
2. Answer any one question : 12×1=12
- (a) Describe the histological details of anterior pituitary gland and the hormones secreted from it. Add a note on ovarian follicles. 6+6=12
 - (b) Write short notes on the following : 6+6=12
 - (i) Double staining method of histological tissue
 - (ii) PAS reaction
 - (c) Write briefly about chromophoric and auxophoric group. What is metachromasia? Describe with diagram the histological details of small intestine of mammal. (2+2)+2+6=12

Unit - II : Microscopy and Analytical techniques

3. Answer any *two* questions : 4×2=8
- (a) Briefly write the application of centrifugation.
 - (b) State the uses of bromophenol blue and ethidium bromide in gel electrophoresis.
 - (c) Compare between SEM and TEM.
 - (d) Explain the Beer-Lambert's law.
4. Answer any *one* question : 12×1=12
- (a) Define resolving power of microscope. Describe the working procedure of light microscopy with diagram. What is sedimentation coefficient? 2+(6+2)+2=12

P.T.O.

(5)

(b) Distinguish between PAGE and agarose gel electrophoresis. Describe the process of paper chromatography. State the role of beta-mercaptoethanol in SDS PAGE technique. 4+6+2=12

(c) Write short notes on : 6+6=12

(i) Working principle of fluorescence microscopy

(ii) HPLC
