

**KALIACHAK COLLEGE**

2021

**ZOOLOGY (Honours)**

**Paper Code: ZHT - V - A & B**

**[New Syllabus]**

**INSTRUCTION TO THE CANDIDATES**

1. On the top of the every page of your answer script write your name, Registration no. session, Roll no. , Subject, Paper code, page no. , candidate signature and date of examination.
2. After completion of the examination take pictures or scan all the pages of your answer script serially as per the page number and make a single pdf file, Rename the file by your name and paper code.
3. Send the pdf file to this email id: [zoologykaliachakcollege@gmail.com](mailto:zoologykaliachakcollege@gmail.com)

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**INSTRUCTION FOR MCQ QUESTIONS**

Candidates are required to attempt all questions (MCQ).

Below each question, four alternatives are given [i.e. (A), (B), (C), (D)].

Only one of these alternatives is 'CORRECT' answer.

The candidate has to write the Correct Alternative [i.e. (A)/(B)/(C)/(D)] against each Question No. in the Answer Script.

**Example** — If alternative A of 1 is correct, then write:

**1. — A**

There is no negative marking for wrong answer.

**Paper Code: ZHT - V - A**

Full Marks: 10

Time: Thirty Minutes

Choose the correct answer.  
Answer *all* the following questions,  
Each question carries 1 mark.

1. Which of the following is a cytoplasmic stain?
  - a. Eosin
  - b. Crystal violet
  - c. Carmine
  - d. Orcein
  
2. The appendages of the skin:
  - a. Are derived from mesoderm
  - b. Are derived from epidermal tissues
  - c. Lie in dermal layer
  - d. Are derived from endoderm
  
3. Counter stain used in Gram staining is:
  - a. Safranin
  - b. Crystal violet
  - c. Carbol fuschin
  - d. Acetocarmine
  
4. An undifferentiated malignant tumor on immunohistochemical stain shows cytoplasmic positivity of most of the tumor cells for cytokeratin. The most probable diagnosis of the tumor is
  - a. Sarcoma
  - b. Lymphoma
  - c. Carcinoma
  - d. Malignant melanoma

5. Which is not a function of epidermis

- a. Protection from adverse condition
- b. Gaseous exchange
- c. Conduction of water
- d. Transpiration

6. Electrophoresis is not used for the separation of

- a. Nucleic acids
- b. Proteins
- c. Amino acids
- d. Lipids

7. For the separation of DNA by electrophoresis, which of the following method is commonly used?

- a. Agarose-Vertical
- b. Agarose- Horizontal
- c. PAGE-Vertical
- d. PAGE-Horizontal

8. Sodium Dodecyl Sulfate (SDS) is used in SDS-PAGE is

- a. An anionic detergent
- b. A Cationic detergent
- c. An Anion exchanger
- d. A cation exchanger

9. TEM has a resolution of

- a. 2000nm
- b. 200nm
- c. 2nm
- d. 0.2nm

10. Ultrastructure of cell can be best studied by

- a. Autoradiography
- b. X-ray diffraction method
- c. Phase contrast microscope
- d. None of these

**ZOOLOGY (Honours)**  
**Paper Code: ZHT - V - B**  
**[New Syllabus]**

Full Marks : 40

Time : One Hour Thirty Minutes

*The figures in the margin indicate full marks.*

**Unit - 1**

**Histology and Histochemistry**

1. Answer two questions from the following- 4x2=8 marks

A. What is ideal fixatives? Which chemical is the most commonly used as a fixative?

B. State the histological features of mammalian thyroid with a labeled diagram.

C. What is the principle behind the hematoxylin and eosin staining? What is the purpose of methylene blue stain?

D. Write a short note on Metachromatic dyes?

2. Answer any one question from the following: 12 x 1 =12

A. Write the processing of tissue for sectioning. What is PAS reaction? 10+2=12

B. Discuss on various stains used in study of nucleic acids in a cell. 12

C. Write the short note on

I) DPX

II) Giemsa stain

III) Fixative : types & example

iv) Sudan black

**Unit – 2**  
**Microscopy and Analytic Techniques**

3. Answer any two questions: 4×2=8 .

1. Answer two questions from the following- 4×2=8 marks

A. What is magnification of a microscope? How to calculate the magnification?

B. What is RPM and Rf value?

C. Write the difference between SEM and TEM.

D. Write the process of making thin layer for Thin layer Chromatography.

2. Answer any one question from the following: 12 x 1 =12

A. What do you mean by Stationary phase and mobile phase? Briefly describe the working principal and application of HPLC. 2+10

B. Why SDS-PAGE is more appreciable than PAGE? Write the principal and methods of Polyacrylamide Gel Electrophoresis. 2+ 10

C. What is Cell fractionation? Write a note on Analytical Ultracentrifugation and Preparative ultracentrifugation. What do you mean by Density- gradient centrifugation? Write its application. 2+3+3+2+2