

2025

FYUGP Semester 3

Zoology

Medical Diagnostics

Code: Zoo-SEC-314

Full marks: 45

Time: 2 hrs

(The figures in the right margin indicate full marks of the questions)

1. Fill in the Blanks. (**Any four**) 1x4=4
  - I. The differential leukocyte count (DLC) is typically performed using \_\_\_\_ stain.
  - II. The instrument used for the determination of platelet count is called a \_\_\_\_\_.
  - III. The presence of blood in urine is medically termed \_\_\_\_\_.
  - IV. MRI stands for \_\_\_\_\_.
  - V. Type I Diabetes Mellitus is primarily caused by the destruction of \_\_\_\_\_ cells in the pancreas.
2. Write short notes on **any three** of the following topics. 3x3=9
  - a. Erythrocyte Sedimentation Rate (E.S.R.)
  - b. Abnormal constituents found in urine.
  - c. Process of Metastasis
  - d. Complications associated with Type II Diabetes.
  - e. Primary Hypertension.
  - f. Prevention strategies for Hepatitis.
3. Write the differences between **any three** of the following pairs. 3x3=9
  - a. Packed Cell Volume (P.C.V.) and Erythrocyte Sedimentation Rate (E.S.R.).

- b. Benign Tumour and Malignant Tumour.
  - c. MRI Scan and CT Scan.
  - d. Diabetes Mellitus Type I and Diabetes Mellitus Type II.
  - e. Primary Hypertension and Secondary Hypertension.
  - f. Tuberculosis and Hepatitis (in terms of affected organ and primary cause).
4. Explain the composition of blood and describe the detailed procedure for the preparation of a blood smear for medical diagnostics. 5+2=7

OR

Elaborate on the importance of medical diagnostics in healthcare. Briefly describe the methodology and significance of determining the Platelet Count using a haemocytometer. 3+3+1=7

5. What is urine analysis? Describe the various physical characteristics of urine that are examined in a routine test and explain how the analysis of these characteristics can aid in medical diagnosis. 1+5+2=8

OR

Describe the basic principle and diagnostic application of two major medical imaging techniques: X-Ray of Bone Fracture and MRI Scan with relevant illustrations. 4+4=8

6. Define Infectious diseases. Discuss the causes, types, symptoms, diagnosis of Tuberculosis. 1+2+2+2+1=8

OR

Define Non-infectious diseases. Describe the testing of blood glucose using a Glucometer/Kit and explain the significance of this test in the diagnosis and management of Diabetes. 2+4+2=8