



THE KENYA POLYTECHNIC UNIVERSITY COLLEGE

DEPARTMENT OF HEALTH SCIENCES AND BIOTECHNOLOGY

DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY

FINAL YEAR EXAMINATION

PRACTICAL EXAMINATION

TIME: 3 HOURS

INSTRUCTIONS

Answer **ALL** questions in section A and B

1. You are provided with a paraffin wax section on a microscope slide marked "T". Stain it using haematoxylin and eosin staining method. Write down the staining procedure and the expected results. (20 marks)

a) Examine spots Q 1 and Q 2 and answer the questions below;

Spot Q 1

- i. Identify the spot (1 mark)
- ii. Give its application in histopathology (1.5 marks)
- iii. How is the spot stored (1.5 marks)
- iv. List one advantage of spot Q, on tissues (1 mark)

Spot Q 2

- i. What is the use of spot Q 2 in histopathology laboratory? (2 marks)
- ii. What precaution is taken when carrying out the preparation of spot Q 2? (2 marks)
- iii. List one advantage of spot Q 2 when being used. (1 mark)

2. Graph paper, Photometer, 50 mg% primary standard, GOD reagent, Test Tubes, Diluting fluid, Plasma Specimen X.

With the help of the analytical method given below and the above named materials,

- i) Prepare 10 mls of 400 mgs% Calibration standard from the primary standard of 50 mgs%. (3marks)
- ii) Dilute the calibration standard you have prepared according to the calibration points given below (3marks)
- iii) Construct a Glucose calibration standard curve with points: 0 mg% , 50 mg%, 100 mg%, 200 mg% and 400 mg% (6marks)

Analytical method of the specimen:-

Dilute the specimen 1 in 40 and use only 2 mls of the diluted specimen and mix it with 1 ml of the GOD reagent to develop color. Incubate the test for 5 minutes at room temperature for 5 minutes. Measure the absorbance of the test by photometry.

- i) Determine the concentration of Glucose in the specimen with the help of the calibration standard curve you have constructed (3marks)
- ii) Outline the principle of GOD (3marks)
- iii) Give the patients diagnosis (1mark)
- iv) Suggest another test that will confirm your diagnosis (1mark)

3. (a) You have been supplied with patient sample labelled P You are required to look for suitable donor labelled S and U. Do the cross match and comment on your results. (25 Marks)

(b) You have been provided with spot 1-3

- (i) Spot 1 Name the spot state its use in blood transfusion. (2 Marks)
- (ii) Spot 2 Name the spot. (1Mark)
- (iii) Spot 3 Name the spot and state its use in blood transfusion. (2 Marks)

4. (a) You are provided with sample labelled T Using apparatus provided perform haemoglobin estimation on the sample and comment on your results. (15 marks)

(b) You are provided with a stained PBF labelled R. Examine the film and name the type of anemia and morphological features of the of the film. (8 marks)

(c) You have been provided with spot 1-4

- (i) Spot 1 Name the spot. (1 Marks)
- (ii) Spot 2 Name the spot and its use. (2 Mark)
- (iii) Spot 3 Name the spot and state its use. (2 Marks)
- (iv) Spot 3 Name the spot and state its use. (2 Marks)

5. a) Examine specimen A using a microscope and answer the following:

- i) Identify the specimen giving reasons (2marks)
- ii) Draw a labeled diagram of the specimen. (2marks)
- iii) Explain the Buffy- coat method for the laboratory diagnosis of the disease caused by the specimen. (6marks)

b) You are provided with specimen B

- i) Identify the specimen. (2marks)
- ii) Supposing the Laboratory Manager would like to rear the specimen, advise the manager regarding the housing requirements and the diet of the specimen.(6marks)

iii) Give the importance of the specimen to medicine. (2marks)

c) You are provided with specimens C, D and E

i) Identify Specimen C using a dissecting microscope and outline its medical importance. (4marks)

ii) Name specimen D and E and for each explain how it is used in a Medical Laboratory. (6marks)

6. a) You are provided with a culture of microorganism labeled J on nutrient agar which was isolated from a urine sample.

With the apparatus and reagents provided, identify the microorganism as far as possible.

(20 marks)

b) i) Identify spot K and state its use. (5 marks)

ii) Identify spot L and state its use. (5 marks)