

**BMI3702
SECOND PAPER**

May/June 2018

Biomedical Techniques

Duration 2 Hours

100 Marks

EXAMINATION PANEL AS APPOINTED BY THE DEPARTMENT

Closed book examination

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue

This paper consists of THREE (3) pages

ANSWER ALL QUESTIONS

Students must answer the questions in the examination answer book provided.

All the best!

[TURN OVER]

QUESTION 1

1 1 Define each of the following items in terms of their use in western blotting

1 1 1 Polyacrylamide gel electrophoresis

1 1 2 Nylon membrane

1 1 3 Discontinuous gel electrophoresis

1 1 4 Primary antibody

1 1 5 Conjugate enzyme

[10]

QUESTION 2

A laboratory assistant was required to prepare 80% glacial acetic acid solution. The assistant created a small space on an already overcrowded laboratory bench and poured 800 ml of acetic acid into a measuring cylinder. The fumes of the acetic acid overcame the assistant, burnt his eyes and his throat. To protect himself he tried to move quickly and in so doing knocked the measuring cylinder over onto himself and the bench, burning his hands, his feet and his legs in the process. At this stage, you enter the laboratory.

2 1 As the first person on the scene what action should you take to assist the injured laboratory assistant?

(10)

2 2 How could the accident have been avoided?

(5)

2 2 What protective clothing should the laboratory assistant have been wearing in order to protect himself?

(5)

[20]

QUESTION 3

3 1 List five (5) factors affecting fixation of the cells in a physical and chemical state

(5)

3 2 Describe the steps involved in the processing of surgical specimens for a histopathological examination

(5)

3 3 Describe properties of an ideal fixative

(10)

3 4 Discuss how one sample for histopathological examination would

(10)

[30]

QUESTION 4

Discuss in detail the theory and applications of thin layer chromatography

[10]

QUESTION 5

- 5.1 Discuss how the use of a dense medium can facilitate the separation of particles by centrifugation. As part of the answer, be sure to identify the two major types of density gradient centrifugation and the basis of separation in each case (10)
- 5.2 Briefly describe the conditions under which centrifugation is carried with respect to the particles being separated in each of the two types (5)
- [15]**

QUESTION 6

Discuss two-dimensional gel electrophoresis

[15]

TOTAL 100 Marks

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