



## UNIVERSITY EXAMINATIONS

### EXAMINATION FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN BIOCHEMISTRY

#### BIOC 841: BIOCHEMICAL PATHOLOGY

STREAMS: MSc. BIOC

TIME: 3 HOURS

DAY/DATE: THURSDAY 17 /4/2024

11.30 A.M. –2.30 P.M.

#### INSTRUCTIONS:

#### ANSWER ANY FOUR QUESTIONS (100 MARKS)

1. (a) Distinguish between cellular necrosis and apoptosis. (2 marks)
- (b) Describe the four main types of cancer based on the type of tissue affected. (8 marks)
- (c) State and explain six characteristics of cancer cells. (12 marks)
- (d) Discuss three mechanisms of cellular apoptosis. (3 marks)
  
2. (a) Give a detailed account of the two common disorders associated with iron metabolism. (8 marks)
- (b) Explain the mechanism of pathogenesis in any four types of porphyria. (8 marks)
- (c) Describe the classification of porphyrias based on signs and symptoms. (3 marks)
- (d) Briefly describe three causes of hyperbilirubinemia and jaundice. (6 marks)
  
3. (a) Describe the role of viruses in cancer pathology. (8 marks)
- (b) Explain the role of tumour suppressor genes in suppression of oncogenesis. (7 marks)
- (c) Describe any five diagnostic techniques used in pathology to the diagnose diseases. (10 marks)
  
4. (a) Recent research suggests that cellular oncogenes are derived from normal proto-oncogenes by at least five mechanisms. Describe the five mechanisms. (10 marks)
- (b) State and explain the current strategies for Prevention and Treatment of Cancer.

(10 marks)

(c) Discuss the basis of use of radiations in cancer therapy. (5 marks)

5. (a) Normal menstrual function depends on the complex hormonal interactions between the hypothalamus, pituitary, and ovaries. On this basis, describe how a case of ammenorhea can be differentially diagnosed. (10 marks)

(b) Discuss the molecular basis of methyl alcohol poisoning. (10 marks)

(c) Explain the mechanism of action of ethanol as an antidote in methanol poisoning. (5 marks)

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