

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATION

RESIT/SPECIAL EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE

BIOC 220/210: BASIC METABOLISM 1

STREAMS:

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 05/05/2021

2.30 P.M – 4.30 P.M

INSTRUCTIONS:

Answer question **ALL** questions

Questions

1. Question 1(30 marks)

- (a). Describe the fate of pyruvate in intense exercise (5 marks)
- (b). Explain how glucagon and epinephrine control glycogen metabolism (5 marks)
- (c). Discuss the biochemical basis of galactosemia (5 marks)
- (d). Explain the difference between cyclic and non-cyclic photophosphorylation (5 marks)
- (e) (i) What is the reducing power produced in the pentose phosphate pathway (1 mark)
(ii) Explain the role of the above reducing power in the synthesis of Glutathione (2 marks)
(iii) What is the role of glutathione in the cells (2 marks)
- (f). Gluconeogenesis is not the reverse of glycolysis. Justify this statement by illustrating the 4 bypass reactions of gluconeogenesis (5 marks)

2. Question 2 (20 marks)

- (a). Describe the glyoxylate cycle (10 marks)
- (b) Describe the Citric Acid cycle, indicating the reactions where reducing powers and energy is produced (10 marks)

3. Question 3 (20 marks)

(a). Describe the glycolytic pathway for glucose clearly indicating steps where ATP is utilized and released (10 marks)

(b). Discuss the Electron transfer chain and the oxidative phosphorylation (10 marks)
