UNIVERSITY COLLEGE TATI

UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET

COURSE CODE	: BME 4113
COURSE	: ENGINEERING ERGONOMICS
SEMESTER/SESSION	: 1-2022 / 2023
DURATION	: 3 HOURS

Instructions:

1. This booklet contains six **(6)** questions. Answer all questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise up your hands and ask the invigilator.

NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 3 PRINTED PAGES INCLUDING COVER PAGE

Answer all questions

QUESTION 1

a) **Determine** factors that could enhance working performance. (4 marks)

b) Briefly **explain** all factors from Q1(a) above (10 marks)

QUESTION 2

a) **Interpret** the differences in between controlled and less controlled research in ergonomics studies. (6 marks)

b) **Classify** four (4) reasons human participants should be ethically protected in research. (8 marks)

QUESTION 3

The NIOSH Lifting Equation is used to assess manual material handling risks associated with lifting tasks in the workplace.

a) **Identify** three (3) criteria considered in establishing Recommended Weight Limit (RWL). (3 marks)

b) **Interpret** Lifting Index (LI) value of LI > 1 and LI > 3. (11 marks)

QUESTION 4

a) Rest period is a fraction of total work time. **Identify** factors that should be considered when applying the work-rest scheduling. (9 marks)

b) **Differentiate** why dynamics and static activities could cause whole-body fatigue. (12 marks)

QUESTION 5

Level of arousal is related to work performance

a) **Construct** chart level of arousal versus performance (4 marks)

b) **Explain** the optimum level of arousal (OAL). (10 marks)

QUESTION 6

a) **Determine** the difference between the structure and functional data. (5 marks)

b) **Determine** three (3) human variability that could influence ergonomics design. (6 marks)

c) **Identify** in sequence the systematic approach the use of anthropometric data in design. (12 marks)

----------**End of question**----------

RUBRIC

Criteria	Marks
All question answered will be marked according to the answer scheme	/100