



UNIVERSITY OF EDUCATION, WINNEBA
INSTITUTE FOR TEACHER EDUCATION AND CONTINUING
PROFESSIONAL DEVELOPMENT (ITECPD)



END OF SECOND SEMESTER EXAMINATIONS, OCTOBER, 2024

LEVEL: 200

COURSE CODE: JBI 241

COURSE TITLE: INTRODUCTION TO MECHANICS

TIME ALLOWED: 2 HRS



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GENERAL INSTRUCTIONS:

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- This paper is made up of ONE SECTION.
- *The Section is made up of five essay type questions.*
- *Answer any THREE questions in your answer booklet.*
- *Each question carries equal marks. You are expected to start each question on a new page.*
- *You will need manuscript sheets for this paper.*
- *You are expected to hand over your answer booklet to the invigilator before you leave the examination hall.*

Instruction: Answer any three (3) questions in the answer booklet provided.

1. a) There is confusion about the meanings of the terms 'velocity' and 'acceleration'. How would you use an everyday event to explain the concept of acceleration and provide a formula for it? **(8 marks)**
b) What is friction? Explain how it affects motion. **(12 marks)**

2. a) Explain to a JHS 2 learner, the concept of 'power' in the context of mechanics, and provide a formula to calculate it. **(10 marks)**
- b) Give a brief explanation for 'momentum' as used in Physics to a lower primary learner. **(10 marks)**
3. a) Explain the term 'vector' and show how vectors could be added up, using demonstrations in your explanation. **(12 marks)**
- b). Design an activity to explain the concepts of 'ductility' and 'brittleness' to primary 6 learners. **(8 marks)**
4. a) Clearly distinguish between the terms 'speed' and 'velocity', using the appropriate terms as they apply in your study of mechanics. **(12 marks)**
- b). A cart does 7000J of work in 20 seconds to transport items. Calculate the power output of the cart. **(8 marks)**
5. a) i) What happens to the momentum of an object if its velocity doubles? Explain the expected clearly, stating any conditions if required. **(12 marks)**
- ii) If a runner travels 10 meters north in 10 seconds, what would be her velocity?
- b) A car changes its velocity from 20m/s to 30 m/s in 5 seconds. Calculate the acceleration of the car. **(8 marks)**



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