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

END OF FIRST SEMESTER EXAMINATIONS, APRIL, 2024

LEVEL 300
COURSE CODE: JBH 351
COURSE TITLE: DESIGN AND REALISATION III

TIME ALLOWED: 2 HRS

GENERAL INSTRUCTIONS:
- **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 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.*

Q1. a). Explain the term linkages in design and realization
b) State any TWO appliances that use link mechanism
c) Define the term lever
d) Outline TWO applications of the first-class lever.
e) A jack raises a load of 1200N using an effort of 300N. Calculate mechanical advantage

Q2. a) Explain the term pulley in design and realization
b) State any THREE (3) characteristics of mechanism
c) Explain any TWO (2) usefulness of slip in machines.
d) State any THREE (3) advantages of belt and pulley transmission system

Q3. a) Explain the term marking out in design and realization

b) State any two (2) significance of marking out

c) Explain the function of the following marking-out tools

    i) Scriber

    ii) Prick Punch

    iii) Hermaphrodite Caliper

d) State the type of motion in the following mechanisms

    i) Door handle

    ii) Car screw jack

    iii)Lip Stick

Q4. a) Define the term chain and sprocket

b) State any THREE (3) domestic appliance that uses chain and sprocket

c) Explain the term idler gear

d) State TWO (2) advantages of spur gear.

Q5. a) Explain the following types of motion in design and realization

    i)   Linear

    ii)   Oscillatory

    iii)   Reciprocating

    iv)   Rotary

b) Define the term worm gear

c) State any TWO (2) applications of worm and worm wheels

d) What is cam and follower