



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

Department of Electrical and Electronic engineering

UNIVERSITY EXAMINATION:
Diploma in Electrical Power Engineering (DEPE 6)
ELECTRICAL DRIVES AND CONTROL II
EEP 2304

END OF SEMESTER EXAMINATION

SERIES: MAY 2016

TIME: 2 HOURS

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **five** Questions;. Attempt any **THREE** Questions.

Do not write on the question paper.

Question ONE

- (a) (i) Explain an electric drive.
- (ii) State Five advantages of electric drives
- (iii) Draw the block diagram of an electric drive system and explain each block. (12 marks)
- (c) Compare between a d.c and a.c electric drive. (8 marks)

Question TWO

- (a) State
 - (i) State two advantages of group drives
 - (ii) Three disadvantages of group drive (5 marks)
- (b) For each of the following driving motor selection criteria state four Considerations made.
 - (i) Electrical
 - (ii) Mechanical
 - (iii) Size and rating. (12 marks)
- (c) Explain the need for motor enclosures and describe three motor enclosures. (3 marks)

Question THREE

- (a) State
 - (i) Two methods of speed control in DC motors.
 - (ii) Four methods of speed control in AC motors. (6 marks)
- (b) Draw the circuit of a controlled rectifier fed single phase two quadrant d.c drive. (6 marks)
- (c) Draw the diagram of a controlled rectifier three phase two quadrant d.c drive. (8 marks)

Question FOUR

- (a) State **FOUR** reasons why induction motors are widely used for drives. (4 marks)
- (b) State the Losses in an induction motor drive. (6 marks)
- (c)
 - (i) Draw the Torque - speed characteristics of an induction motor drive.
 - (ii) State the basis of choosing a starting arrangement.
 - (iii) State Three starting methods of Induction machines (10 marks)

Question FIVE

- (a) Explain Three methods of Induction motor braking. (9 marks)
- (b) With the aid of a diagram explain the operation of the Four quadrant drive. (8 marks)
- (c) Distinguish between active Load torque and passive load torque. (3 marks)