



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

DEPARTMENT OF MECHANICAL AND AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MECHANICAL ENGINEERING (DMEN 6)

EAU 2305 MOTOR VEHICLE DRAWING AND DESIGN II

SPECIAL SUPPLEMENTARY EXAMINATION

SERIES: SEPT. 2017

TIME: 2 HOURS

DATE: 2017

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.

Do not write on the question paper.

Question One

Determine the angular velocity of the link CD and the direction of rotation in figure 1. The input link AB rotates at 60rev/min in a clockwise direction.

(20 marks)

Question Two

(a) State four factors to consider when selecting a bearing for a particular use.

(4 marks)

(b) Discuss the following materials used for making bearings:-

(i) Bronze

(ii) Aluminium alloy

6 marks)

(c) Explain how bearings are lubricated

(4 marks)

(d) Describe the adjustments made on a bearing

(6 marks)

Question Three

- (a) Outline a step-by step process to be followed when designing a machine or machine component. (10 marks)
- (b) State ten factors to be considered when designing a component. (10 marks)

Question Four

- (a) Define the following terms:-
(i) Tolerance
(ii) Allowance (2 marks)
- (b) With the aid of diagrams, describe the following types of fits:-
(i) Clearance fit
(ii) Transition fit
(iii) Interference fit (12 marks)
- (c) By use of diagrams to aid your answer, differentiate between unilateral and bilateral tolerances. (6 marks)

Question Five

Construct a gear tooth profile given module of 6, pressure angle is 20° and pitch circle diameter of 24mm.