



# TECHNICAL UNIVERSITY OF MOMBASA

## DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

SECOND YEAR UNIVERSITY EXAMINATION FOR THE DEGREE IN BACHELOR OF SCIENCE IN ELECTRICAL AND ELECTRONIC ENGINEERING (BSEE II)

### EME 2113 ENGINEERING DRAWING & DESIGN II

#### END OF SEMESTER EXAMINATIONS

**SERIES:** DECEMBER, 2013

**TIME:** 2 HOURS

#### INSTRUCTION TO CANDIDATES

1. You should have the following for this examination:-
    - Answer Booklet
    - Scientific Calculator
    - Drawing Instruments
  2. This paper consists of **FIVE** questions.
  3. Answer Question **ONE** is **COMPULSORY** and any other **TWO** Questions.
  4. Maximum marks for each part of Question are as shown.
  5. This paper consists of **FOUR** printed pages.
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#### Question ONE (Compulsory)

Figure 1 shows a shaft support bracket. Draw in the FIRST ANGLE the orthographic projection of the unit to include:

- (i) Sectional front view on plane BB
- (ii) End view on Plane E
- (iii) Plan view on Plane P
- (iv) Full dimensions

(30 marks)

#### Question TWO

- (a) Construct to show the cycloid generated by a wheel diameter 30mm as it makes one revolution. **(10 marks)**
- (b) Construct a parabola using the rectangular method for a rectangle of 120mm by 80mm. **(10 marks)**

### Question THREE

Construct the profile of the centre finder shown in Figure 2, using geometrical construction techniques, on a scale of 2:1. **(20 marks)**

### Question FOUR

- (a) Sketch, in good proportion, the conventional representation of the following:
- (i) External thread
  - (ii) Square on shaft
  - (iii) Tension spring
  - (iv) Internal thread
- (8 marks)**
- (b) Sketch the distinguish the following types of fits:
- (i) Clearance fit
  - (ii) Interference fit
  - (iii) Transitional fit
- (6 marks)**
- (c) A dimension is labeled as  $50H_{7k6}$ . Explain the meaning of each letter/number. **(6 marks)**

### Question FIVE

Figure 3 shows two views of a truncated open ended sheet metal hexagonal based pyramid. Re-draw the views to include:

- (i) The completed plan view
  - (ii) An end view as seen in arrow direction E
  - (iii) The sheet metal development of the pyramid
- (20 marks)**