



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

**UNIVERSITY EXAMINATION FOR:**

**DIPLOMA IN MARINE ENGINEERING**

**EMR 2213 : ENGINEERING DRAWING & DESIGN II**

**END OF SEMESTER EXAMINATION**

**SERIES: APRIL 2016**

**TIME: 3 HOURS**

**DATE: 15 May 2016**

## **Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID, Drawing paper A2*

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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## **Question ONE**

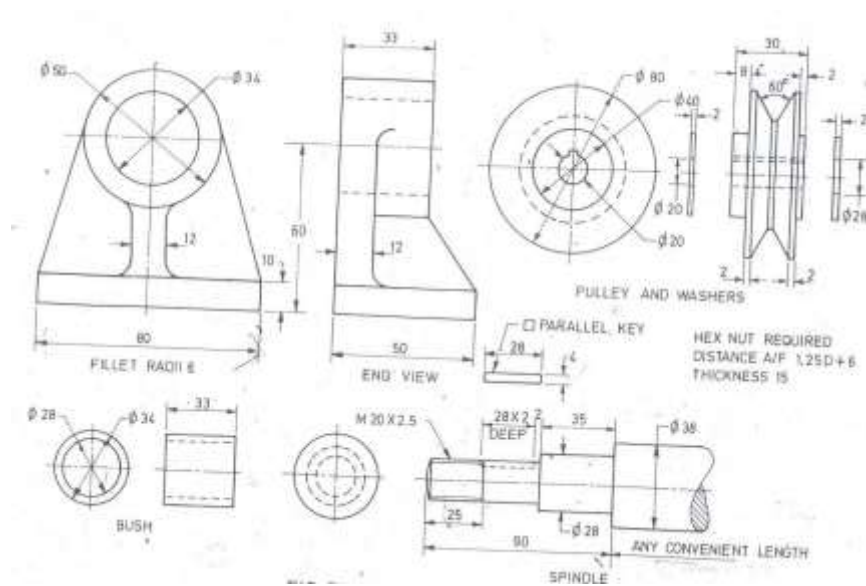
Figure QN1 shows parts of PULLEY BLOCK assembly. Assemble the parts and draw FULL SIZE in First angle orthographic projection, the following views;

- (a) a sectional front elevation along a symmetrical vertical plane.
- (b) end elevation from the side with the nut
- (c) plan.

Include a fastening nut, SIX leading dimensions, parts list and symbol of projection.

(30 marks)

Figure QN1.



## Question TWO

- (a) Outline the importance of correct storage of materials. (4 marks)
- (b) Explain briefly the four main parts of a valve symbol. (4 marks)
- (c) State SIX main features to be considered when selecting a valve. (6 marks)
- (d) Explain the preventive measures taken in large pipe lines carrying fluids in order to avoid the following

Dangers;

- (i) Bursting from over-pressure
- (ii) Fires due to leakage
- (iii) Freezing or caking causing blockage
- (iv) Explosions

(6 marks)

### **Question THREE**

- (a) i) State and explain the THREE types of displays used in instrument design.
- ii) Explain at least ONE example for each of the type of display stated in a(i) above
- (9 marks)

### **Question FOUR**

- (a) Outline the procedure on how to use a portable fire extinguisher in the event of fire outbreak.
- (5 marks)
- (b) i) State and explain the THREE main classes of fire
- ii) What are the possible fire extinguishers for the classes of fire named in b(i) above.
- (9 marks)
- (c) Explain briefly how each of the fire extinguishers named in b(ii) is identified. (6 marks)

### **Question FIVE**

- (a) State with the aid of sketches FOUR types of couplings used for power transmission. (8 marks)
- (b) Draw the symbol for the following components used in pipework;
- i) 90° elbow welded
- ii) Tee reducing soldered
- iii) Union screwed
- iv) Gate valve hose flanged
- (4 marks)
- (c) Draw sketches of the following components ;
- i) U-seal
- ii) Cup-seal
- iii) Slip-on flanged
- iv) Threaded flange
- v) Socket welded flange
- (8 marks)