



**TECHNICAL UNIVERSITY OF MOMBASA**

---

**DEPARTMENT OF MECHANICAL AND AUTOMOTIVE ENGINEERING**

**UNIVERSITY EXAMINATION**

**FOR**

**DIPLOMA IN MARINE ENGINEERING**

**EMR 2115: WORKSHOP TECHNOLOGY AND PRACTICE II**

**END OF SEMESTER EXAMINATION**

**SERIES: APRIL**

**TIME: 2HOURS**

**DATE: APRIL 2016**

**Instructions to candidates**

**You should have the following for this examination**

- **Answer booklet, examination pass and student ID**
- **This paper consist of five questions**
- **Attempt any three questions**
- **All questions carry equal marks**
- **Do not write on the question paper.**

**QUESTION ONE**

- a) Describe clearly the lathe machine and explain any **FOUR** common possible cutting operations. **(6 marks)**
- b) With the aid of a neat sketch label any **six** main parts of a center lathe. **(6marks)**

- c) (i) With the aid of illustrations describe any **three** common lathe accessories.  
(ii) State any **four** common methods of work holding on the lathe machine.  
**(8marks)**

### QUESTION TWO

- a) i. Describe the principle of operation for the shaping machine and state **two** advantages of the shaping machine over other machines.  
ii. Discuss any **four** safety precautions when using the shaper machine. **(8marks)**
- b) i. With the aid of a suitable neat labelled show illustration any **four** main parts of a shaping machine.  
ii. sketch and name any **four** shaping tools and their applications. **(8marks)**
- c) i. State and sketch the most convenient method of holding the work during shaping.  
ii. Define the slotting machine **(4marks)**

### QUESTION THREE

- a) i. Describe the operation of milling machines and explain why they are referred to as versatile machines.  
ii. State and describe any two types of milling machines. **(6marks)**
- b) i. Name and describe any **two** types of teeth for milling cutters. **(4marks)**  
ii. Explain the **three** main categories of milling cutters and state **two** types for each class. **(10marks)**

### QUESTION FOUR

- a) i. Define corrosion and state the **three** factors that govern the rate of corrosion.  
  
ii. State and describe the **two** mechanism of corrosion. **(9marks)**
- b) With the aid of suitable sketches describe how the following two metals protect iron from corrosion.  
i. ZINC in galvanizing  
ii. TIN in tinsplating **(6marks)**
- c) i. State any **four** methods of corrosion prevention.

ii. Discuss any **one** method of surface preparation and state any **two** main classification of paints. **(5marks)**

#### **QUESTION FIVE**

a) i. State **six** major items of standing and **six** items of running rigging with which the ship is fitted.

ii. List any **six** miscellaneous gears in a ship **(10marks)**

b) i. Describe the rig up method of accommodation ladder.

ii. Discuss the sea gang way. **(6marks)**

c) Describe the **two** ways how the flexibility is introduced into a wire rope. **(4marks)**