

**TECHNICAL UNIVERSITY OF MOMBASA**

**Faculty of Engineering and Technology**

DEPARTMENT OF MECHANICAL AND AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATIONS FOR DIPLOMA IN MARINE ENGINEERING

**EMR 2109 GENERAL MARINE ENGINEERING KNOWLEDGE**

EXAMINATIONS

Sept.2017

TIME: 2 HOURS

**QUESTION ONE**

- a) Explain any five differences between spark ignition engines and compression ignition engines (10 marks)
- b) Sketch a well labelled Piston cylinder arrangement showing; piston rings, inlet and exhaust valves, crank shaft, connecting rod, combustion chamber, Clearance volume and stroke length. (10 marks)

**QUESTION TWO**

- a) State any FIVE criteria used to classify marine steering systems giving an example for each criterion. (10 marks)
- b) Sketch a block diagram explaining how power is transmitted from the steering wheel to the rudder of a typical marine electro-mechanical automatic steering system. (10 marks)

**QUESTION THREE**

- a) State and explain the use of any FOUR common marine shafts (8 marks)
- b) Using sketches explain any FOUR shaft misalignments. (12 marks)

**QUESTION FOUR**

- a) State the FIVE body senses and explain how each can be used during watchkeeping(10 marks)
- b) Explain the procedure to be followed when evacuating passengers in a passenger liner during an emergency. ( 10 marks)

**QUESTION FIVE**

- a) State any TEN safety rules and regulations to be observed during repair and maintenance works i. (10 marks)
- b) Explain the procedure to be followed when entering and enclosed space (10 marks)