



TECHNICAL UNIVERSITY OF MOMBASA

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Faculty of Engineering and Technology  
Department of Mechanical & Automotive Engineering  
UNIVERSITY EXAMINATION FOR:  
Diploma in Automotive Engineering  
EAU 2205: Engine Technology & Practice II  
END OF SEMESTER EXAMINATION  
SERIES: AUGUST 2019  
TIME: 2 HOURS  
DATE: Pick Date August 2019

**Instruction to Candidates:**

You should have the following for this examination

- *Student I.D. Card & Examination Pass*
- *Answer booklet*

This paper consists of **FIVE** questions divided sections A and B. Attempt any **TWO** questions from section **A**, and any **ONE** question from section B.

Maximum marks for each part of a question are as shown.

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

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**SECTION A: Attempt any TWO questions from this section**

**Question ONE**

- a) Differentiate between a full-flow and a by-pass filter used in engine lubrication system. **(3 marks)**
- b) State any **THREE** additives used with the lubricating oil and give their functions. **(3 marks)**
- c) State any **THREE** qualities of a good lubricant. **(3 marks)**
- d) State the functions of the following parts of an engines lubrication system:
- Oil pump
  - Oil galleries
  - Oil pressure warning light
- (3 marks)**
- e) With the aid of a well labelled diagram describe the construction and operation of an oil cooler system used to cool engine lubricating oil. **(8 marks)**

**Question TWO**

- a) Why are baffles placed inside the fuel tank? **(1 mark)**

- b) State the functions of the following parts of a carburetor: **(2 marks)**
- i) Air horn
  - ii) Fuel bowl
- c) State **TWO** reasons for creating a fuel tank ventilation system in an SI engine fuel system. **(2 marks)**
- d) Sketch a well labelled diagram of a down-flow fuel filter used with SI engines. **(5 marks)**
- e) With the aid of a diagram, briefly describe the output stroke during the operation of a non-positive displacement mechanical fuel pump used in SI fuel system. **(10 marks)**

### **Question THREE**

- a) State any **TWO** possible demerits of very high operating temperatures in an engine. **(2 marks)**
- b) State any **TWO** functions of the fan used in liquid cooling system. **(2 marks)**
- c) State any **THREE** disadvantages of liquid – cooled over air-cooled engines. **(3 marks)**
- d) State any **THREE** factors affecting the rate of cooling in an air cooled engine. **(3 marks)**
- e) With the aid of a diagram, briefly describe the principle of operation of a thermosyphoned liquid cooling system **(10 marks)**

### **SECTION B: Attempt any ONE question from this section**

#### **Question FOUR**

- a) State any **ELEVEN** precautions one should observe when handling fuel lines and hoses. **(11 marks)**
- b) State any **THREE** possible causes of the following abnormalities as relates to carburetors **(9 marks)**
- i. Poor idling
  - ii. Excessive fuel consumption
  - iii. Engine runs but misses

#### **Question FIVE**

- a) State some **EIGHT** maintenance practices and precautions to be observed for efficiently operating engine lubrication system. **(8 marks)**
- b) State any **FOUR** possible causes of the following anomalies frequently observed in lubrication systems. **(12 marks)**