

Name \_\_\_\_\_ Index No \_\_\_\_\_ / \_\_\_\_\_

1503/205  
ENGINES AND AUTO ELECTRICS  
June/July 2015  
Time: 3 Hours

Candidate's Signature \_\_\_\_\_

Date \_\_\_\_\_



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**CRAFT CERTIFICATE IN AUTOMOTIVE ENGINEERING  
MODULE II**

ENGINES AND AUTO ELECTRICS

3 Hours

**INSTRUCTIONS TO CANDIDATES**

*Write your name and index number in the spaces provided above.*

*Sign and write the date of examination in the spaces provided above.*

*You should have Drawing instruments for this examination.*

*This paper consists of TWO sections; A and B. .*

*Answer FIVE questions in total; taking at least TWO questions from each section in the spaces provided in this question paper.*

*Maximum marks for each part of a question are as indicated.*

*Candidates should answer the questions in English.*

**For Examiner's Use Only**

Section	Question	Maximum Score	Candidate's Score
A		20	
		20	
B		20	
		20	
A or B		20	
Total Score			

**This paper consists of 16 printed pages.**

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

**SECTION A:**

*Answer at least TWO questions from this section.*

1. (a) State **two** types of thermostats. (2 marks)
- (b) With the aid of a sketch explain the operation of a pressure cap used in the cooling system. (18 marks)
2. (a) Sketch **three** types of valve seats. (9 marks)
- (b) With the aid of a sketch explain the construction of a poppet valve assembly. (11 marks)
3. (a) State **three** functions of oil in the engine. (3 marks)
- (b) Sketch and explain the operation of wet sump pressure lubrication system of an engine. (17 marks)
4. (a) State **four** advantages of a gas turbine engine. (4 marks)
- (b) With the aid of a sketch explain the operation of a gas turbine engine. (16 marks)

**SECTION B:**

*Answer at least TWO questions from this section.*

5. (a) State any **five** advantages of Electronic Fuel Injection (EFI) (5 marks)
- (b) Explain the functions of the following components of an electronic fuel injection system:
  - (i) filter;
  - (ii) pressure regulator;
  - (iii) injection. (9 marks)
- (c) Explain the term "**common rail injection**" for electronic diesel fuel injection (EDI). (6 marks)
6. (a) State **four** advantages of air conditioning system in a car. (4 marks)
- (b) With the aid of a layout sketch explain the operation of air conditioning system. (16 marks)

