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University Examinations 2019/2020

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR THE CERTIFICATE IN
MOTORVEHICLE MECHANICS

EMC 1201: ENGINE TECHNOLOGY I11

DATE: OCTOBER, 2020

TIME: 1½ HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions.

QUESTION ONE (30 MARKS)

- a) State five functions of the lubricating oil in the engine. (5 marks)
- b) Using a sketch describe the construction of a wankel engine. (5 marks)
- c) State three sources of environmental pollution in petrol engine. (3 marks)
- d) List five advantages of gas turbines over internal combustion engines. (5 marks)
- e) Describe the following in relation to hybrid electrical vehicles.
 - (i) Regenerative braking (2 marks)
 - (ii) Electric motor drive/assist (2 marks)
 - (iii) Automatic start/shut off (2 marks)
- f) State three types of additives and describe why they are added into the engine oil. (6 marks)

QUESTION TWO (15 MARKS)

- a) Using a diagram, describe the components and layout of LPG fuel systems.(9 marks)
- b) Describe how a catalytic converter reduces harmful emissions from a car engine.
(6 marks)

QUESTION THREE (15 MARKS)

- a) Using sketches describe the construction and operation of gas turbines. (8 marks)
- b) Explain two causes of engine oil deterioration. (4 marks)
- c) List three environmental pollutants present the exhaust gas. (3 marks)

QUESTION FOUR (15 MARKS)

- a) Using a sketch describe the construction and operation of gas turbines. (6 marks)
- b) Discuss three methods of reducing harmful emissions from car engines. (6 marks)
- c) State three advantages of LPG as engine fuel. (5 marks)