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10AU55

Fifth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Auxiliary Systems of Automotive Engines

Time: 3 hrs. Max. Marks:100

Note: 1. ***Answer FIVE full questions, selecting at least TWO questions from each part.***
2. ***Draw neat sketches wherever applicable.***

PART – A

1 a. Define the carburetion. What are the mixture requirements for steady state and transient operation? **(06 Marks)**

b. With a neat sketch, explain working, construction, merits and demerits of a simple carburetor. **(10 Marks)**

c. What is the effect of altitude on carburetion? How it can be corrected? **(04 Marks)**

2 a. What is petrol injection? What are its advantages and disadvantages? **(10 Marks)**

b. What do you understand by:
(i) Continuous injection system (ii) Timed injection system. **(10 Marks)**

3 a. Discuss the requirements of an ideal injection. **(08 Marks)**

b. Draw a typical heat release diagram of diesel engine and discuss its salient points. **(08 Marks)**

c. Describe a typical automatic injector. **(04 Marks)**

4 a. Explain the working of a Bosch fuel injection pump, with a neat sketch. **(10 Marks)**

b. Explain with a neat sketch:
(i) Pintle nozzle. (ii) Pintaux nozzle. **(10 Marks)**

PART – B

5 a. List various types of air filters. Explain an oil bath – air cleaner, with a neat sketch. **(08 Marks)**

b. Explain with neat sketch, any two types of mufflers. **(08 Marks)**

c. Write a note on manifolds. **(04 Marks)**

6 a. Compare air cooling and water cooling systems. **(08 Marks)**

b. Explain with a sketch the functioning of thermostat assisted cooling system. **(08 Marks)**

c. Mention the effects of over cooling of an engine. **(04 Marks)**

7 a. Enlist and discuss the important properties of a lubricant. **(06 Marks)**

b. How lubricating oils are classified? **(06 Marks)**

c. Discuss different types of lubricating oil filters commonly used. **(08 Marks)**

8 a. What is supercharging? How is it achieved? **(04 Marks)**

b. Derive an expression for the power required for an IC engine supercharger. **(07 Marks)**

c. What is the effect of supercharging on the following parameters:
(i) Power output.
(ii) Mechanical efficiency
(iii) Fuel consumption. **(09 Marks)**

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