

USN

--	--	--	--	--	--	--	--	--	--

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)

\* \* \* \* \*