

FACULTY OF ENGINEERING

B.E. 3/4 (Auto Engg.) I-Semester (Main) Examination, November/December 2012

Subject : Automotive Diesel Engines

Time : 3 Hours

Max. Marks: 75

Note: Answer **all** questions of Part - A and answer any **five** questions from Part-B.**PART – A** (25 Marks)

1. What are the requirements of a fuel injection system of a diesel engine? (3)
2. Explain what is meant by cetane number. (2)
3. Explain crank case scavenging. (3)
4. What is the purpose of injection pump governor? (3)
5. Name some commonly used nozzles in diesel engines. (2)
6. Explain the effect of engine speed on engine performance characteristics. (3)
7. Explain about emission of a CO from the engine exhaust. (2)
8. Explain stages of combustion in diesel engines. (3)
9. What is the data required to prepare heat balance diagram for a diesel engine? (2)
10. Define (a) Brake thermal efficiency (b) Specific fuel consumption (2)

PART – B (5x10=50 Marks)

- 11.(a) List the major differences between the actual cycle and air standard cycle. (3)
(b) Why the efficiency of actual cycle is lower than that of air standard cycle? List various losses in actual engine. (3)
(c) Explain the working of jerk type injection pump with a neat sketch. (4)
- 12.(a) Discuss how diesel is rated for anti-knock quality and explain how cetane number is determined in laboratory. (6)
(b) Write notes on knocking in diesel engines. (4)
- 13.(a) What are the requirements and design objectives of combustion chamber in diesel engines? (4)
(b) Explain the factors affecting the delay period in diesel engines. (6)
- 14.(a) Explain how the turbocharger is matched with an engine. (6)
(b) What are the merits and limitations of turbocharging? (4)
- 15.(a) Compare diesel and dual cycles taking different variables. (6)
(b) Derive an expression for mean effective pressure of diesel engine. (4)
16. Explain the following:
(a) Phenomenon of spray formation in diesel engines (6)
(b) Ignition timing (2)
(c) Ignition lag (2)
- 17.(a) Explain the methods of reducing exhaust emissions in engines. (5)
(b) Why charge cooling is needed in turbo charged engines. (5)
