

GBCS Scheme

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15AU561

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018

Automobile Engineering

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. With neat sketches and p-v diagram, explain the working of four stroke diesel engine. (08 Marks)
- b. Explain the actual valve timing and theoretical valve timing diagram for four stroke SI engine. What are the factors responsible for deviation of actual valve timing diagram from theoretical valve timing diagram? (08 Marks)

OR

- 2 a. Explain the following:
i) Overhead valve operating mechanism
ii) Side valve operating mechanism (08 Marks)
- b. Discuss the thermosyphon cooling system with a neat sketch. What are its advantages and disadvantages? (08 Marks)

Module-2

- 3 a. Briefly explain the A/F mixture requirements for different engine conditions. (08 Marks)
- b. With a neat sketch, explain the construction and working of a carter carburetor. (08 Marks)

OR

- 4 a. Briefly discuss the two types of MPFI system for SI engine with a neat sketch. (08 Marks)
- b. What are desirable properties of IC engine fuels and list the prominent alternative fuels? (08 Marks)

Module-3

- 5 a. With a neat sketch explain the battery coil ignition system. What are its demerits? (08 Marks)
- b. With a neat sketch explain the transistorized coil ignition. (08 Marks)

OR

- 6 a. With a neat sketch explain the construction and working of a sliding mesh gear box. (08 Marks)
- b. The engine of an automobile runs at a constant speed of 3200 rpm. It is adopted with a 4-speed gear box of gear ratio 1, 1.5, 2.48 and 3.93:1 as nearly as possible. The center distance between the lay shaft and main shaft is 73.12 mm and smallest pinion is to have atleast 15teeth with a module of 3.25 mm. Find the number of teeth on various gear wheels and exact gear ratio in different gears. (08 Marks)

Module-4

- 7 a. State the necessity of a differential. Explain the construction and working of differential. (10 Marks)
b. Briefly discuss the various types of rear axle casing. (06 Marks)

OR

- 8 a. What are the different types of chassis frames? Explain. (08 Marks)
b. State the functions of a steering system. Explain steering linkage layout of rigid axle and independence suspension system. (08 Marks)

Module-5

- 9 a. List and explain the different types of leaf springs used in suspension system. (08 Marks)
b. With a neat sketch, explain the construction and working of a hydraulic braking system. State its advantages and disadvantages. (08 Marks)

OR

- 10 a. What are the sources of pollutants from IC engines and diseases caused by engine pollution? (08 Marks)
b. Explain the exhaust gas recirculation with a neat sketch. (08 Marks)

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