

CBCS SCHEME

USN

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

15AU44

Fourth Semester B.E. Degree Examination, Dec.2018/Jan.2019 Automotive Engines

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Explain with suitable sketches the working of a four stroke spark ignition engine. (08 Marks)
(08 Marks)
- b. Compare the spark ignition engine with compression ignition engine.

OR

- 2 a. Draw the actual valve timing diagram of a two stroke engine. Explain in brief. (08 Marks)
- b. Show the diesel cycle on P-V and T-S diagrams and derive an expression for its efficiency. (08 Marks)

Module-2

- 3 a. Write a short note on the air-fuel ratio requirements of a petrol engine from no load to full load. (08 Marks)
- b. What is the function of carburetor in an S.I engine? Explain with a neat sketch the operation of a simple carburetor. (08 Marks)

OR

- 4 a. Describe with the help of suitable sketches :
i) Jerk pump injection system
ii) Common rail direct injection system. (08 Marks)
- b. Explain the working principle of mechanical and pneumatic governors in diesel engines with neat sketches. (08 Marks)

Module-3

- 5 a. Describe the stages of combustion phenomenon in S.I engines with the help of P-Q diagram. (08 Marks)
- b. Describe the effect of following engine variable on flame propagation.
i) Fuel air ratio
ii) Compression ratio
iii) Turbulence
iv) Engine speed. (08 Marks)

OR

- 6 a. Describe the phenomenon of diesel knock. What are the different methods of controlling diesel knock. (08 Marks)
- b. Discuss the advantages and disadvantages of induction swirl. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-4

- 7 a. What are the objects of soupercharging? Explain the effect of soupercharging on the following parameters.
i) Power output
ii) Mechanical efficiency
iii) Fuel consumption. (08 Marks)
- b. What are the advantages and disadvantages of pulse turbo charging? (08 Marks)

OR

- 8 a. Describe the following water cooling system with neat sketches.
i) Thermo-siphon cooling (08 Marks)
ii) Thermostat cooling (08 Marks)
- b. What are the advantages and disadvantages of water cooled engines. (08 Marks)

Module-5

- 9 a. Discuss the basic requirements of an ideal gasoline and diesel fuel. (08 Marks)
- b. Define octane number and cetane number. Explain the methods of determining these numbers. (08 Marks)

OR

- 10 a. Explain the following wet sump lubrication systems with neat sketches :
i) Splash system (08 Marks)
ii) Full pressure system (08 Marks)
- b. Discuss the important properties of a lubricating oil which affect engine performance. (08 Marks)
