

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch: Mechanical Engineering Semester: VIII

Subject Code & Name: BTMEC801A Fundamentals of Automotive Systems

Max Marks: 60

Date: 04/07/2022

Duration: 3.45 Hr.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

(Level/CO) Marks

Q. 1 Solve Any Two of the following.

- A) What are the limitations of the supercharging in an IC engine? 06
B) Briefly explain the following: (i) time loss factor (ii) heat loss factor (iii) exhaust blowdown factor. 06
C) Explain the loop scavenging process in two-stroke engine with neat schematic diagram. 06

Q.2 Solve Any Two the following.

- A) Explain the stages of combustion in CI engine? 06
B) Briefly discuss the air-fuel ratio of a petrol engine from no load to full load. 06
C) Explain the exhaust gas recirculation (EGR) method for controlling the emissions from the engine. 06

Q. 3 Solve Any Two of the following.

- A) Explain the engine power-torque vs speed characteristics for actual internal combustion engine with suitable performance curve. 06
B) Explain the working of clutch in automotive with suitable layout. 06
C) Describe the working of multi speed gear box 06

Q.4 Solve the following.

- A) Explain the hydraulic braking system. 06
B) What is antilock braking system? Explain with suitable diagram. 06

Q. 5 Solve Any Two of the following.

- A) Explain the hydraulic power steering system with suitable schematic diagram. 06
B) Describe the various types of front suspension systems. 06
C) What are the causes of tyre heat and how can it be reduced? 06

*** End ***