

B. M. S. College of Engineering, Bengaluru - 560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E.

Branch: Mechanical Engineering

Course Code: 20ME7DEAUE

Course: Automotive Engineering

Semester: VII

Duration: 3 hrs.

Max Marks: 100

Date: 21.09.2023

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1. a) List and explain the main components of an automobile engine. **10**
- b) Explain the reasons for engine emission control and list how it can be achieved. **05**
- c) Explain cooling and lubrication systems used in an automobile engine. **05**

UNIT - II

2. a) With a graph explain resistance, power and torque curves in an automobile. **10**
- b) Discuss how the speed and rear axle ratio are computed. **06**
- c) What is the effect of torque on mechanical efficiency? Explain. **04**

UNIT - III

3. a) Explain the properties of fuels used in IC engines. **06**
- b) Sketch a valve timing diagram of a four stroke engine and explain it. **06**
- c) Explain with a neat sketch working of multi plate clutch. **08**

OR

4. a) Differentiate between two stroke and four stroke engine. **05**
- b) With a neat sketch explain working of a differential and list its advantages. **10**
- c) Sketch neatly Hotchkiss and torque tube drives. **05**

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

UNIT - IV

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|----|----|---|-----------|
| 5. | a) | With a sketch explain the cross section of a truck tyre. | 06 |
| | b) | Explain working of telescopic type of shock absorber with a sketch. | 10 |
| | c) | Sketch a propeller shaft and label the parts. | 04 |

OR

- | | | | |
|----|----|--|-----------|
| 6. | a) | Explain the geometry of steering system. | 08 |
| | b) | Explain any two types of wheels and tyres. | 06 |
| | c) | Explain stopping distance and braking efficiency of an automobile brake. | 06 |

UNIT - V

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|----|----|---|-----------|
| 7. | a) | Explain briefly the working of an starting system with a neat sketch. | 08 |
| | b) | Discuss in detail the different alternate fuels used in automobiles. | 08 |
| | c) | What are the applications of electronic components in an automobile. | 04 |
