

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2024****Subject Code: 3150210****Date: 23-05-2024****Subject Name: Automobile Engines****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) In what respect four stroke cycle CI engine differ from that of an SI engine? **03**
(b) Draw the otto cycle on p-V and T-s diagrams and mark the various processes. **04**
(c) Explain Valve timing diagram for S.I Engine with neat sketch. **07**
- Q.2** (a) What are different air fuel mixture on which an engine can be operated? **03**
(b) Explain working principle of Mechanical fuel pump with neat sketch. **04**
(c) With a neat sketch explain the working principle of a simple carburetor. **07**
- OR**
- (c) Explain MPFI system for petrol engine with neat sketch. **07**
- Q.3** (a) Give difference between Air and solid injection system. **03**
(b) Enlist properties of C.I engine fuels & define any three. **04**
(c) Draw a schematic diagram of fuel feed pump and explain its working principle. **07**
- OR**
- Q.3** (a) What is the purpose of using a governor in CI engines? What are the two major type of governors? **03**
(b) What is the purpose of a fuel injector? Mention the various parts of an injector assembly. **04**
(c) Explain construction and working of Fuel Injector with neat sketch. **07**
- Q.4** (a) What are the various components to be lubricated in an engine? **03**
(b) Compare the wet sump and dry sump lubrication system. **04**
(c) Enlist types of cooling system & explain Thermo-syphon cooling system with neat sketch. **07**
- OR**
- Q.4** (a) What is delay period and what are the factors that affect it? **03**
(b) Explain factors affecting flame propagation in C.I. Engine. **04**
(c) Explain the stages of combustion with P- θ diagram in S.I. engines **07**
- Q.5** (a) Define scavenging. State different types of scavenging. **03**
(b) What is meant by supercharging? What is its effect on engine performance? **04**
(c) What is turbocharging? State the types of turbocharging and explain any one with neat sketch. **07**

OR

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| Q.5 | (a) | Explain the principle involved in the measurement of brake power. | 03 |
| | (b) | Briefly discuss the various efficiency terms associated with an engine. | 04 |
| | (c) | With a neat sketch, explain an Eddy current dynamometer. | 07 |
