

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-V EXAMINATION – WINTER 2025

Subject Code:3150210

Date:25-11-2025

Subject Name: Automobile Engines

Time: 10:30 AM TO 01:00 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) Classify I.C. Engine. 03
(b) Define (1) Clearance volume (2) Bore (3) Stroke (4) Swept Volume 04
(c) Explain working & construction of 4 - stroke petrol engine with neat sketch 07
- Q.2** (a) Differentiate between Petrol engine (S.I .engine) & Diesel engine (C.I. engine) 03
(b) Explain valve timing diagram of 4 - stroke diesel engine 04
(c) Explain construction & working of Simple Carburettor with neat sketch. 07
- OR**
- (c) Explain construction & working of MPFI with neat sketch 07
- Q.3** (a) Define : (1) Knocking (2) Ignition lag (3) Detonation 03
(b) Explain construction and working of Fuel Injector with neat sketch. 04
(c) Explain types of fuel injector nozzle. Explain phasing & calibration of F.I. pump 07
- OR**
- Q.3** (a) Explain the function of cooling system & Differentiate between Air Cooling & Water Cooling system. 03
(b) Explain the working of water cooling system. Write its merits & de merits. 04
(c) Enlist types of lubrication system used in automobile engines. Explain any one with neat sketch. 07
- Q.4** (a) Explain the desirables properties of lubricating oil. 03
(b) Differentiate between Supercharger & Turbocharger. 04
(c) Explain flame propagation? Explain stages of combustion in S.I. engine in brief. 07
- OR**
- Q.4** (a) Enlist types of scavenging. Explain any one in brief. 03
(b) Differentiate between Supercharger & Turbocharger. 04
(c) Enlist types of methods of scavenging. Explain any one in brief. 07
- Q.5** (a) Explain heat balance sheet. 03
(b) Define (1) IHP (2) BHP (3) FHP (4) Thermal Efficiency 04
(c) Explain measurement of indicated power of multi cylinder engine by Morse test. 07
- OR**
- Q.5** (a) Define (1) Volumetric efficiency (2) Top Dead centre (3) Compression ratio 03
(b) Explain factors effecting engine performance. 04
(c) Write different types of dynamometer. Explain any one dynamometer test in brief. 07