

313312

12526

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answers with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following :** **10**
- a) Define the term :
- i) Cylinder bore
- ii) Compression ratio
- b) State the function of the following components –
- i) Camshaft
- ii) Crankshaft
- c) List any four types of injector nozzles.
- d) List two functions of carburetor.
- e) Draw neat sketch of absorber type muffler.
- f) Explain firing order of 3 cylinder engine.
- g) List any four properties of coolant

P.T.O.

2. Attempt any THREE of the following :**12**

- a) List various applications of I.C. engine.
- b) Compare S.I. engine and CI engine on basis of –
 - i) Fuel used
 - ii) Operating cycle
 - iii) Compression ratio
 - iv) Engine speed
- c) Explain with neat sketch overhead valve arrangement.
- d) State any four requirements of ignition system.

3. Attempt any THREE of the following :**12**

- a) Classify I.C. engine on the basis of –
 - i) Cycle of operation
 - ii) Method of cooling
 - iii) Fuel used
 - iv) Method of ignition
- b) Describe with neat sketch working of S.U. electrical fuel feed pump.
- c) Compare battery and Magneto ignition system on the basis of –
 - i) Efficiency
 - ii) Space
 - iii) Maintenance
 - iv) Suitability
- d) Explain with neat sketch working of splash lubrication system.

4. Attempt any THREE of the following : 12
- a) Explain valve cooling with neat sketch.
 - b) Describe the working of fuel injector with neat sketch.
 - c) Illustrate working of battery ignition system with neat sketch.
 - d) Explain with neat sketch working of thermostat valve.
 - e) Distinguish between air cooling system and water cooling system.
5. Attempt any TWO of the following : 12
- a) Explain with neat sketch working of 4 - stroke petrol engine and also draw valve timing diagram for the same.
 - b) Explain with neat sketch three types of camshaft drive.
 - c) Select air-fuel ratio requirement of petrol engine and justify your answer for the following conditions –
 - i) At starting
 - ii) At idling
 - iii) At full throttle
6. Attempt any TWO of the following : 12
- a) Select proper material for following engine components –
 - i) Piston
 - ii) Cylinder head
 - iii) Cylinder block
 - iv) Piston ring
 - v) Connecting rod
 - vi) Camshaft

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Marks

- b) Compare carburetor and fuel injection on the basis of –
- i) Performance
 - ii) Maintenance
 - iii) Fuel control
 - iv) throttle response
 - v) Fuel efficiency
 - vi) cost
- c) Classify lubricating oil using viscosity (SAE) and load severity (API) rating.
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