

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-304
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (Mechanical)
I.C. Engines
(REVISED)

[Time: Three Hours]

[Max. Marks: 80]

N.B Please check whether you have got the right question paper.

- N.B
- i) Solve any three questions from each section.
 - ii) Figure to the right indicates full marks.
 - iii) Assume suitable data, if necessary.
 - iv) Use of non-programmable calculator is allowed.

Section A

- | | | |
|-----|---|----|
| Q.1 | a) Explain with the help of P-V and T-S diagram the air standard diesel cycle. Obtain the thermal efficiency of diesel cycle in terms of compression ratio & cut off ratio. | 07 |
| | b) Explain dissociation and its effects. | 06 |
| Q.2 | a) In actual cycle, what is exhaust blow down loss? Explain it. | 07 |
| | b) Explain the principle of carburetion. State the limitations of simple carburettor. | 06 |
| Q.3 | a) What are desirable properties of good IC engine fuels? | 07 |
| | b) Write the general objectives of combustion chamber for SI engine. | 06 |
| Q.4 | a) Explain combustion in SI engine with P- θ diagram. | 07 |
| | b) Explain the phenomenon of detonation in SI engine with a diagram. | 06 |
| Q.5 | Write short notes on(any two) | 14 |
| | 1. 'Hydrogen' as alternate fuel | |
| | 2. Octane Number | |
| | 3. Variable specific heat and its effect. | |

Section-B

- | | | |
|-----|---|----|
| Q.6 | a) Explain different stages of combustion in CI engine with diagram. | 07 |
| | b) Compare knock in CI engine and SI engine. | 06 |
| Q.7 | a) State different combustion chamber used in CI engine. Explain any one. | 07 |
| | b) Explain Cetane Number. | 06 |

- Q.8 a) Mention the effect of supercharging on engine performance. What are the limitations of supercharging in an IC engine? 07
- b) A six cylinder gasoline engine operates on the four stroke cycle. The bore of each cylinder is 80 mm and stroke 100 mm the clearance volume per cylinder is 70 CC. At a speed of 4000 r.p.m., the fuel consumption is 30 kg/hr. and the torque developed is 150 N.m. calculate: 06
1. The brake power
 2. The brake mean effective pressure
 3. The brake thermal efficiency, assume the C.V. of fuel as 43,000 kJ/kg.
- Q.9 a) State different emission coming out from I.C. engine. Explain effect of any two on human health. 06
- b) Explain Homogeneous charge compression ignition Engine. Write its advantages. 07
- Q.10 Write explanatory notes on: (Any two) 14
1. Wankel engine
 2. MPFI engine
 3. Willan's line method for measuring friction power.