

Roll No.

Total No. of Questions : 09]

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B.Tech. (Sem. – 4th)
INTERNAL COMBUSTION ENGINES
SUBJECT CODE : AE - 202
Paper ID : [A0708]

Time : 03 Hours

Maximum Marks : 60

Instruction to Candidates:

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Four** questions from Section - B.
- 3) Attempt any **Two** questions from Section - C.

Section - A**Q1)****(10 × 2 = 20)**

- a) State the function of a carburettor in petrol engine.
- b) What is relative efficiency?
- c) What is the function of intake manifold?
- d) Define combustion? State the general conditions necessary for combustion.
- e) State the applications of C.I. Engines.
- f) What do you mean by term 'carburetion'?
- g) What is petrol injection?
- h) State the importance of engine friction.
- i) State the demerits of overcooling and undercooling.
- j) What is supercharging?

Section - B**(4 × 5 = 20)****Q2)** Explain with suitable sketches the working of a four stroke otto engine.**Q3)** A carnot engine working between 400° C n and 40° C produces 130 kj of work. Determine :

- (a) The engine thermal efficiency
- (b) The heat added
- (c) The entropy changes during the heat rejection process.

Q4) Give the comparison of 'Actual naturally aspirated' and 'supercharged engine' pressure – volume diagram.

Q5) How engines are air cooled? What is the purpose of fins in an air cooled system? What is the size and spacing of fins

Q6) Describe how the I.P. of a multicylinder engine is measured?

Section - C

(2 × 10 = 20)

Q7) (a) Describe the difference between theoretical and actual valve timing diagrams of a diesel engine.

(b) Explain the phenomenon of knocking in S.I. Engines. What are different factors which influence the knocking? Describe the methods used to suppress it.

Q8) Describe with suitable sketches the following systems of a modern carburetor:

(a) Main Metering System.

(b) Idling System.

(c) Economiser System.

(d) Acceleration pump system.

Q9) Enumerate the lubrication system and explain wet sump lubrication system with the help of neat sketch.

