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Total No. of Pages: 02
Total No. of Questions: 09**B.Tech.(AE) (Sem.-4th)**
INTERNAL COMBUSTION ENGINES**Subject Code: BTAE-401****Paper ID: [A1161]****Time: 3 Hrs.****Max. Marks: 60****INSTRUCTIONS TO CANDIDATE:**

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

SECTION-A**(10x2=20)**

- Q.1. a) What is the use of air standard cycle analysis?
b) Explain scavenging.
c) What is detonation?
d) What is meant by carburetion?
e) How lubricating oils are classified?
f) Name various types of liquid cooling system.
g) What is the function of a turbocharger?
h) Why the inlet valves are generally kept larger than the exhaust valves?
i) What is the function of a cam shaft?
j) What is meant by thermal efficiency of an engine?

SECTION-B**(4x5=20)**

- Q.2. Sketch and explain the Otto cycle on p-V diagram.
- Q.3. Discuss the phenomenon of pre-ignition in S.I. engine and compare the same with detonation.
- Q.4. Write a note on electronic control of fuel injection system.
- Q.5. How do the injection timing and the fuel quality effect the engine knock? Discuss.
- Q.6. Discuss the effects of supercharging on performance of an automobile engine.

SECTION-C

(2x10=20)

- Q.7. Describe the function and constructional details of a vibration damper.
- Q.8. Discuss the working of a simple single jet carburetor. Also write the limitations of simple carburetor.
- Q.9. What are oil additives? Discuss the factors on which the consumption of lubricating oil in an engine depends.

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