Roll No .....

AU/ME-4004 (CBGS)

B.E. IV Semester

Examination, May 2018

Choice Based Grading System (CBGS)

Energy Conversion

Time : Three Hours

Maximum Marks: 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.
iii) Assume suitable data, if any.

1. Followings are the statements write whether it is true or false.
   i) CI engines works on an otto cycle.
   ii) In an air standard diesel cycle, at fixed compression ratio and fixed value of adiabatic index (Y), thermal efficiency increase with increase in heat addition cut off ratio.
   iii) Increases in compression ratio reduces the delay period.
   iv) The function of fuel injector is atomization and vaporization of the fuel.
   v) MPFI system is commonly used in petrol engines.
   vi) Reciprocating compressor is commonly used for supercharging

2. a) What are the two basic types of internal combustion engines? What is the fundamental difference between them?
   b) Draw and explain the performance characteristics curve of SI engines.

3. a) Describe with suitable sketch the two stroke SI engine. How its indicator diagram differs from that of four stroke engine.
   b) Explain the phenomenon of auto-ignition. Explain how auto-ignition is responsible for knocking in SI engines.

4. a) Explain the main factors that influence the flame speed.
   b) Explain with neat sketch the phases of combustion in CI engines.

5. a) Explain briefly basic methods of generation air swirl in CI engines combustion chambers.
   b) Explain with neat sketch the working principle of a solex carburetor.

6. a) What are the functional requirements of injection system? Explain injection system which used in multi-cylinder diesel engine.
   b) What is the importance of lubrication in CI engines? Enumerate lubrication system explain any one of them with neat sketch.

7. a) Explain the factors that limits the extent of supercharging of SI and CI engines.
   b) Why is cooling necessary for IC engines? State the demerits of overcooling and undercooling.

8. Write short notes on followings (any three)
   i) Firing order
   ii) Abnormal combustion
   iii) Knock inhibitors
   iv) MPFI system
   v) Turbo charging
   vi) Scavenging system

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