

TME-602

1095

Even Semester Examination 2018-19

B.Tech. (ME) (SEMESTER-VI)

IC ENGINE

Time: 03:00 Hours

Max Marks :100

Note: All questions are compulsory. Draw diagrams wherever necessary. All questions carry equal marks.

1. Attempt any four parts of the following : [5×4=20]
 - (A) Explain the constructional difference between two stroke and four stroke engines.
 - (B) Explain the phenomenon of detonation in SI engines.
 - (C) Describe the MPFI (multi point fuel injection) system used in automobiles.
 - (D) Describe the working principle of two stroke CI engine.
 - (E) Describe the internal combustion engine and external combustion engines. What are the merits and demerits of internal combustion engines over external combustion engines?
 - (F) Discuss about alternative fuels for IC engines.

2. Attempt any four parts of the following : [5×4=20]
 - (A) Define swept volume, clearance volume, compression ratio.
 - (B) Draw the p-v diagram and the typical valve timing diagram for a two stroke IC engine.
 - (C) Describe the desirable characteristics of fuels for spark ignition engines.
 - (D) What is supercharging? What are the limitations of supercharging in an IC engine?

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(E) Differentiate between battery ignition system and magneto ignition system.

(F) What are the major factors involved in preventing knocking in SI engines?

3. Attempt **any two** parts of the following :

[10×2=20]

(A) Describe the working principle of Ericsson engine with perfect regeneration.

(B) Write short note on pollution caused by IC engines and its control.

(C) Explain the reasons for cooling an engine. And explain the evaporative cooling system used in automobiles.

4. Attempt **any two** parts of the following :

[10×2=20]

(A) What are the major emissions that comes out in diesel exhaust? How can NO_x emissions can be reduced by exhaust gas recirculation?

(B) Discuss battery ignition system, with neat and clean sketch. Also discuss the effect of engine speed and part load operation on the ignition timing requirements.

(C) What are the advantages and disadvantages of two stroke engines? Also compare two stroke SI and CI engines.

5. Attempt **any two** parts of the following :

[10×2=20]

(A) How are the injection system classified? Describe them briefly with neat and clean sketches.

(B) Why cooling is required for engines? Make comparison between air and water cooling system of engines.

(C) List different types of lubrication systems used for lubrication of internal combustion engine and describe anyone with detail.

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