7E1747

Roll No. _____ Total No. of Pages: 2

7E1747

B. Tech. VII - Sem. (Main) Exam., Feb.- March - 2021
PEC Mechanical Engineering
7ME5 – 11 I. C. Engines

Time: 2 Hours **[To be converted as per scheme]**

Max. Marks: 82
Min. Marks: 29

Instructions to Candidates:

Attempt all ten questions from Part A, four questions out of seven questions from Part B and two questions out of five from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL

2. NIL

PART – A

(Answer should be given up to 25 words only) **[10×2=20]**

All questions are compulsory

Q.1 What is objectives of I. C. Engine? [2]

Q.2 What is Thermal efficiency? [2]

Q.3 Draw the figure of combustion chamber. [2]

Q.4 What is Knocking? [2]

Q.5 What is the compression of 4 – stroke diesel engine? [2]

Q.6 What is Turbulence? [2]

Q.7 Write the name of all parts of 4 – stroke petrol engine. [2]

Q.8 What is delay period? [2]

Q.9 Draw the figure of cooling system of I. C. Engine with all components. [2]

Q.10 What is electronic ignition system? [2]

PART – B

(Analytical/Problem solving questions) **[4×8=32]**

Attempt any four questions

Q.1 Explain the lubrication system in I. C. engine. [8]

Q.2 Explain Indicated Horse Power (IHP) and also derive formula of IHP. [8]

Q.3 Explain the types of Combustion Chamber. [8]

Q.4 Explain fuel –air cycle with diagram. [8]

Q.5 Describe the different method of super charging with diagram and also describe the Thermodynamics cycle of supercharging. [8]

Q.6 Explain the effect of engine variables an ignition lag in S. I. engine. [8]

Q.7 Explain firing order in the engine. [8]

PART – C

(Descriptive/Analytical/Problem Solving/Design Questions) **[2×15=30]**

Attempt any two questions

Q.1 What is the function of carburetor and also explain all the parts of carburetor with diagram. [15]

Q.2 Explain the injection system in C. I. engine also explain the types of injection system. [15]

Q.3 A two stroke C. I. engine delivers 500 kW while using 1000 kW to overcome frictional losses. It consume 2300 kg of fuel per hour at an air fuel ratio of 20 to 1. The heating value of fuel is 42000 kJ/kg. Find the – [15]

(a) Indicated Power

(b) Mechanical Efficiency

(c) Indicated Thermal Efficiency

(d) Brake Thermal Efficiency

Q.4 Explain water cooling system with suitable diagram. What is the function of fins? [15]

Q.5 Explain why rich or lean mixtures are supplied during idling normal running and maximum power range in a spark ignition engine. Give the value of A/F ratio. [15]
