4E4145

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4E4145

B. Tech. IV Sem. (Main) Exam., June/July-2014

Mechanical Engg.

4ME6A1.C. Engines

Common with AE

Time: 3 Hours **Maximum Marks: 80**

Min. Passing Marks: 24

Instructions to Candidates:-

*Attempt any **five questions**, selecting **one question** from **each unit**. All Questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing 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._____ 2._____

UNIT – I

Q.1 Write in detail to explain the 5 efficiencies which indicate the performance of an engine. What are their general values? [16]

OR

Q.1 Explain the working of a two stroke, naturally aspirated S.I. engine giving neat sketch. [16]

UNIT – II

Q.2 (a) Differentiate between:-

(i) Detonation & knocking

(ii) Delay period & Ignition delay

(iii) Turbulence & Swirl

(iv) Petrol & Diesel injection [8]

(b) What is meant by knock rating? Explain how Cetane no of a diesel fuel sample is decided. [8]

OR

Q.2 (a) Write five factors which increase the detonation tendency in an S.I. engine where as they will control knocking in a diesel engine. Give detail explanation. [10]

(b) Differentiate between an IDI & DI engine. [6]

UNIT – III

Q.3 Explain why rich or lean mixtures are supplied during Idling, Normal running & maximum power range in a spark ignition engine. Give the values of A/F ratios. [16]

OR

Q.3 (a) Explain the working of an electronic ignition system in an S.I. engine giving a neat sketch. [8]

(b) Explain the working of a diesel injector giving a neat sketch. Differentiate between petrol & diesel injection. [8]

UNIT – IV

Q.4 (a) What are the functions of lubricating oil? How the lubricating oils are rated. [8]

(b) Give the average temperature ranges of:

(i) Piston

(ii) Exhaust value

(iii) Spark plug.

How these specific parts are cooled in an engine. [8]

OR

Q.4 Explain the suitability of SI & CI engines for supercharging. [16]

UNIT – V

Q.5 Differentiate between a dual fuel & multi fuel engine. [16]

OR

Q.5 Explain the suitability of a diesel engine to run on dual fuel. Why the preferred fuel for a diesel engine is natural gas. [16]
