

4E4145

Roll No. \_\_\_\_\_

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4E4145

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

Mechanical Engg.  
4ME6AI.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 valve

(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]

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