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Question Paper Code : 42835

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Eighth Semester

Mechanical Engineering

ME 2041 – ADVANCED I.C. ENGINES

(Regulations 2008)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. What are the stages of combustion in a SI engine ?
2. Define equivalence ratio.
3. Mention the two types of combustion chamber in a C.I. engine.
4. List the two types of photographic technique used for flow visualisation.
5. What are the causes for hydrocarbon emission from S.I. engine ?
6. What is photochemical smog ?
7. Write the sources for obtaining methanol fuel.
8. Mention the techniques of hydrogen utilisation in a SI engines.
9. Why lean mixture is preferred in SI engine ?
10. What is a lean burn engine ?

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PART – B

(5×16=80 Marks)

11. a) Briefly explain the stages of combustion in SI engines elaborating the flame front propagation along with a sketch of pressure vs. crank angle.

(OR)

b) Explain the various factors that influence the phenomena of knock in SI engines

12. a) With the help of pressure crank angle diagram discuss briefly the stages of combustion in CI engine.

(OR)

b) What is delay period and what are the factors that affect the delay period ?

13. a) Describe in detail about the effects of hydrocarbon based fuel emissions on environment.

(OR)

b) Specify the main emissions from a multi-cylinder passenger car C.I. engine. How is sulphur emission in IC engine ?

14. a) Explain the two methods by which hydrogen can be used in CI engine.

(OR)

b) Discuss the change in properties of alcohol-petrol blends and their effect on the performance of the engine.

15. a) What is the necessity for gasoline injection ? Explain with suitable sketch.

(OR)

b) Explain briefly electronic fuel injection system with a neat sketch.