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Question Paper Code : 41373

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

Eighth Semester

Mechanical Engineering

ME 6016 – ADVANCED I.C. ENGINES

(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. Distinguish between multipoint fuel injection and GDI system.
2. List the types of combustion chambers used in SI engine.
3. Define the term turbocharging.
4. Define the terms swirl and squish.
5. Why reduction catalyst is placed before the oxidation catalyst in a three way catalytic converter ?
6. How formation of oxides of nitrogen occurs in an IC engine ?
7. Write the features of Biodiesel fuel.
8. List merits and demerits of alcohol fuels.
9. Why CRDI is preferred over mechanical fuel injection system ?
10. Define the term Hybrid Electric Vehicle.

PART – B

(5×16=80 Marks)

11. a) Explain the working of MPFI and GDI system with neat sketch. (16)
(OR)
b) Describe the phenomenon knocking in SI engine and the factors affecting knocking in SI engine. (16)



12. a) Discuss about the functions, requirements and types combustion chambers used in CI engine with neat sketch. (16)
(OR)
- b) Explain the stages of combustion in CI engine with pressure-crank angle and heat release rate diagram. (16)
13. a) Discuss about formation of oxides of nitrogen and particulate matter in Diesel engines. (16)
(OR)
- b) Elucidate the working, design features of SCR and Diesel Particulate Filters with neat sketch. (16)
14. a) Discuss about the methods of using alcohol fuels in IC engines. (16)
(OR)
- b) Explain the methods of using CNG and hydrogen in Diesel engines. (16)
15. a) With a neat schematic layout explain the working of common rail direct injection system and write the merits of CRDI over Mechanical fuel injection system. (16)
(OR)
- b) Detail about methods of achieving HCCI combustion mode in CI engines and list the challenges and advantages of HCCI combustion. (16)