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Question Paper Code : 91828

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Eighth Semester

Mechanical Engineering

ME 6016 – ADVANCED I.C. ENGINES

(Regulations 2013)

(Common to PTME 6016 Advanced I.C. Engines for B.E. (Part-Time) –

Seventh Semester – Mechanical Engineering – Regulations – 2014)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. Define abnormal combustion.
2. Classify the factors that are involved in either producing (or) preventing knock.
3. List the factors affecting the delay period.
4. What are the major parts of a turbocharger ?
5. Summarize the causes for hydrocarbon emission from S.I. engine.
6. What is photochemical smog ?
7. List the feed stocks for production of methanol.
8. Mention the techniques for fuelling SI engines with hydrogen.
9. Why lean mixture is preferred in SI engine ?
10. What are the fuels used in HCCI engines ?

PART – B

(5×13=65 Marks)

11. a) Explain how the power and efficiency of the SI engine vary with air-fuel ratio for different load and speed conditions ?

(OR)

- b) Elaborate on the stages of combustion in SI engines.



12. a) Detail the techniques adopted for controlling diesel knock.

(OR)

b) List and explain the various types of combustion chambers employed in CI engines.

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

(OR)

b) i) Explain the formation of particulate matters in diesel engines. (8)

ii) Present the option available for reducing emission of particulate matters. (5)

14. a) Compare any 4 fuel related properties of LPG, CNG and Hydrogen with that of diesel.

(OR)

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

15. a) With a neat sketch explain the working of a series and parallel hybrid electric vehicle.

(OR)

b) With a neat sketch explain the working of Common Rail Direct Injection Diesel Engine.

PART – C

(1×15=15 Marks)

16. a) Scientifically Justify “The best fuel for a SI engine is the worst one for CI Engine”.

(OR)

b) Discuss the importance of hybrid vehicles in India.