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Question Paper Code: 31789

B.E. / B.Tech. DEGREE EXAMINATION, JAN 2018

Elective

Mechanical Engineering

01UME920 - ADVANCED IC ENGINES

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Define knocking.
2. What are the factors that influence the flame speed?
3. What are the different types of combustion chambers used in diesel engine?
4. What do you understand by indirect injection systems?
5. What is three way catalyst?
6. What is green house effect?
7. List down the major constituents of natural gas and LPG.
8. Name some alternates fuels used for internal combustion engines.
9. What is the working principle of Stratified charge engine?
10. What is HCCI engine?

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the various stages of combustion in a SI engine with a P- θ diagram. (16)

Or

(b) What are important requirements of automobile carburetor and briefly explain any one carburetor with neat sketch. (16)

12. (a) Explain the process of combustion in CI engine. (16)

Or

(b) List the factors affecting knocking and explain their influence in detail. (16)

13. (a) Explain how it is possible to lower down NOX emission form engine with exhaust gas recirculation. (16)

Or

(b) Explain the various types of instruments used for measurement of emissions from IC engines. (16)

14. (a) What is LPG and How it will replace the conventional fuels and compare with petrol as fuel for SI engine. (16)

Or

(b) Discuss the performance combustion and emission characteristics of using Hydrogen in SI engines. (16)

15. (a) Explain the characteristics of a homogeneous charge compression ignition engine. (16)

Or

(b) Define GDI engine and briefly explain its modes of operation. (16)