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Question Paper Code: 39079

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

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. List out some of the knock limited parameters.
2. What are the stages of combustion in a SI engines?
3. List the factors affecting the delay period.
4. Why specific fuel consumption is high in indirect injection type?
5. Which is the most effective after treatment for reducing engine emissions?
6. What is three way catalyst?
7. List the advantages and disadvantages of natural gas.
8. Compare the octane number and the calorific value of alcohol with petrol.
9. What are the factors that influence the operation of the plasma jet plug?
10. Mention the principle of a surface ignition engine.

PART - B (5 x 16 = 80 Marks)

11. (a) Briefly explain the various stages of combustion in SI engines. (16)

Or

(b) Discuss why a modern carburetor is being replaced by an injection system in SI engine. (16)

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

Or

(b) Explain the principle of operation of a turbocharger with neat sketch, indicated the objectives of turbo charging. (16)

13. (a) What are the interpretations drawn from percentage of HC, CO, CO₂ and O₂ from engine exhaust. (16)

Or

(b) Write a note on emission norms indicating clearly the need and the pollutants that are covered in the norms. (16)

14. (a) Explain the possibility of using reformulated gasoline and water gasoline mixture as alternate fuel. (16)

Or

(b) Give a brief account of LPG being used as an alternate fuel in SI engine. (16)

15. (a) Discuss the operation of gasoline direct injection system with a block diagram showing clearly all the sensors. (16)

Or

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