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**Question Paper Code: S31783**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 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. Define knocking.
2. What are the factors affecting carburetion?
3. What are the features which influence the rate of burning of a fuel drop in CI engine?
4. What are the different types of combustion chambers used in diesel engine?
5. What are common SI engine pollutants?
6. What is three way catalyst?
7. What are the composition of natural gas?
8. Name some alternates fuels used for internal combustion engines.
9. What is HCCI engine?
10. Write the advantages of Lean Burn Engine.

PART - B (5 x 16 = 80 Marks)

11. (a) Briefly explain the various stages of combustion in SI engines. (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) What are the requirements of diesel fuel injection system? Explain air injection system with neat sketch. (16)

13. (a) What are the interpretations drawn from percentage of HC, CO, CO<sub>2</sub> and O<sub>2</sub> from engine exhaust. (16)

Or

(b) Explain how it is possible to lower down NO<sub>x</sub> emission from engine with exhaust gas recirculation. (16)

14. (a) Explain the reasons looking for alternate fuels for IC engines. (16)

Or

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

15. (a) What is lean burn engine and explain briefly with neat sketch. (16)

Or

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