

Reg. No. :

--	--	--	--	--	--	--	--	--	--

**Question Paper Code: 39720**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 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. List out some of the knock limited parameters.
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. Mention the principle of a surface ignition engine.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the various stages of combustion in a SI engine with a P- $\theta$  diagram. (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) List the factors affecting knocking and explain their influence in detail. (16)

13. (a) Explain how it is possible to lower down NOX emission from 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) Explain the possibility of using reformulated gasoline and water gasoline mixture as alternate fuel. (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)