Code No. 5351

FACULTY OF ENGINEERING

B.E. 2/4 (Automobile Engg.) II - Semester **(Supplementary)** Examination, January 2012

Subject : **Automotive Petrol Engines**

Time : 3 Hours Max. Marks: 75

Note: Answer **all** questions of Part – A. Answer any **five** questions from Part-B.

PART – A (25 Marks)

1. Define the following terms : (3)
   (a) Volumetric efficiency
   (b) Mechanical efficiency
   (c) Compression ratio
2. What is meant by TDC and BDC? Show the two dead centres with a suitable sketch. (3)
3. Explain the working principle of carburettor. (2)
4. What are the different air fuel mixtures on which an engine can be operated? (2)
5. What are the main requirements of an ignition system? (2)
6. Why Spark advance is required? Explain. (3)
7. Briefly explain the stages of combustion in SI engine. (3)
8. What are the factors to be considered while designing a combustion chamber? (2)
9. Explain the various reasons for cooling an engine. (2)
10. Briefly explain the working principle of splash lubrication system. (3)

PART – B (5x10=50 Marks)

11.(a) What are the merits and demerits of four stroke engine over two stroke engine? (6)
   (b) Discuss in detail the application of various types of Internal combustion engines. (4)

12.(a) Explain why a rich mixture is required for the following : (5)
   (i) Idling (ii) Maximum power and sudden acceleration
   (b) Draw the Schematic diagram of fuel feed pump and explain its working principle. (5)

13.(a) What are the main differences between constant choke and constant vacuum carburettors? (4)
   (b) With a suitable sketch explain the working principle of solex carburettor. (6)

14.(a) Differentiate between Battery ignition and magneto ignition system. (6)
   (b) Explain with a neat sketch the vacuum advance system. (4)

15.(a) Explain the effect of various engine variables on SI engine Knock. (5)
   (b) What are the various types of combustion chambers used in SI engine? Explain them briefly. (5)

16.(a) With a neat sketch explain the working principle of thermosyphon cooling system. (5)
   (b) Differentiate between wet sump and dry sump lubrication system. (5)

17. Write short notes on the following : (10)
   (a) Petrol injection
   (b) Electronic ignition system
   (c) Firing order and its significance