10ME844

Eighth Semester B.E. Degree Examination, June/July 2018
Automotive Engineering

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1   a.   Mention the different cylinder arrangements of a IC engine and discuss their merits and demerits.   **(08 Marks)**
    b.   Sketch and Explain,
         (i)   Thermosyphon system of engine cooling.
         (ii)   Pump circulation system of engine cooling.   **(12 Marks)**

2   a.   Discuss normal and abnormal combustion in SI engine.   **(06 Marks)**
    b.   What are OCTANE and CETANE rating of IC engines?   **(06 Marks)**
    c.   With neat sketch, explain S.U. carburetor.   **(08 Marks)**

3   a.   Discuss various methods of super charging of IC engines.   **(08 Marks)**
    b.   Discuss with sketches of various types of superchargers.   **(12 Marks)**

4   a.   Sketch and explain battery coil ignition system. What are its advantages and disadvantages?   **(10 Marks)**
    b.   Explain following types of automatic ignition advance mechanisms:
         (i)   Centrifugal advance.
         (ii)   Vacuum advance.   **(10 Marks)**

PART – B

5   a.   What are the requirements of clutch? Sketch and explain cone clutch.   **(08 Marks)**
    b.   With neat sketch, explain the working of three speed synchromesh gear box.   **(12 Marks)**

6   a.   Sketch and explain the working of a Differential.   **(08 Marks)**
    b.   A motor vehicle has a wheel base of 2.75 m and pivot centers are at a distance of 1.05 m apart. The front and rear wheel track is 1.25 m. Determine the correct angle of outside lock and turning circle radius of the outer front and inner rear wheels when the angle of inside lock is 40°.   **(05 Marks)**
    c.   Sketch and explain power steering arrangement.   **(07 Marks)**

7   a.   Sketch and explain following suspension systems:
         (i)   Torsion bar
         (ii)   Leaf spring.   **(10 Marks)**
    b.   Sketch and explain hydraulic braking system.   **(10 Marks)**

8   a.   Sketch and explain positive crank case ventilation system.   **(08 Marks)**
    b.   Sketch and explain EGR system of NO_X reduction.   **(06 Marks)**
    c.   Write short notes on emission standards.   **(06 Marks)**

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