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10ME844

**Eighth Semester B.E. Degree Examination, Dec.2015/Jan.2016**

**Automotive Engineering**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. With a neat sketch explain the overhead valve actuating mechanism. (08 Marks)
- b. Explain dry sump lubrication system with sketch. (08 Marks)
- c. Bring out at least 4 differences between Dole thermostat, and Bellows thermo stat. (04 Marks)
- 2 a. What is Carburetor? With a neat sketch explain construction and working of constant draft carburetor. (12 Marks)
- b. With sketch explain the working of s.u. electrical pump. (08 Marks)
- 3 a. With sketches explain any two methods of supercharging arrangement. (08 Marks)
- b. With sketch explain : i) Pulse turbo charging ii) Hyper bar turbo charging. (08 Marks)
- c. Give any four comparisons between Turbo charging and mechanical super charging. (04 Marks)
- 4 a. With appropriate circuit diagram explain 4 cylinder battery ignition systems. (10 Marks)
- b. With a neat sketch explain the construction & working and vacuum advance mechanism. (06 Marks)
- c. Write atleast eight differences between magneto ignition and Battery ignition. (04 Marks)

**PART – B**

- 5 a. With a neat sketch explain the fluid flywheel. Used in Automobiles. (08 Marks)
- b. Explain the freewheeling mechanism with sketch. (04 Marks)
- c. Bring out at least four differences between dog clutch and synchroniser unit. (02 Marks)
- d. Determine the dimensions of a clutch plate developing 40kW at 4000rpm. The inner diameter of the clutch plate is 0.6 times its outer diameter and it is to be ensured that even after a loss of 30% of the engine torque due to clutch facing wear, it should not slip. The pressure intensity should not exceed 75KPa take  $\mu = 0.3$ . (06 Marks)
- 6 a. With neat sketch, describe differential unit employed in automobiles. (08 Marks)
- b. Draw the sketches to show i) Castor ii) Camber iii) Toe – in iv) Toe – out. (08 Marks)
- c. A motor vehicle has a wheel base of 2.75m and pivot centers are at a distance of 1.05m apart the front and rear wheel track is 1.25m. Determine the correct angle of outside lock and turning circle radius of outer front wheel, when the angle of inside of lock 40°. (04 Marks)
- 7 a. Explain the torsion bar suspension system. (04 Marks)
- b. Describe the construction and operation of disc brake. (08 Marks)
- c. Draw the layout of hydraulic braking system and explain its operation clearly. (08 Marks)
- 8 a. With schematic diagram explain vapour recovery system clearly. (05 Marks)
- b. Explain with sketches Air injection and Air aspirator system. (12 Marks)
- c. Give a brief account of emission standards opted in India. (03 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.