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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2014

MECHANICAL ENGINEERING (TAMIL MEDIUM)

Seventh Semester

MESOI/ME 9029 AUTOMOBILE ENGINEERING

(Regulation 2008)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. What is a hybrid vehicle?
2. Draw a shape of any hatchback car.
3. List any two merits of gas turbines.
4. Name any two alternative fuels for petrol engine.
5. State the need for differential.
6. Why a gearbox is a necessary in an automobile?
7. Define Ackermann's steering principle.
8. Name any two safety systems in a vehicle.
9. What is engine tuning?
10. What is a chassis dynamometer?

Part – B (5 x 16 = 80 marks)

- 11.i) Sketch the different type of engine mountings in an automobile. (8)
- ii) Briefly explain with a sketch some types of vehicle chassis. (8)

12. a) Explain with a sketch the operation of electronic engine management system. (16)

(OR)

- b) Draw a schematic of a hybrid and electric vehicle. Explain how these vehicles operate & mention the advantages over conventional engine powered vehicle.(16)

13. a) What is the function of a rear axle? Describe any one type of rear axle with a sketch. Also mention the other types of rear axles commonly used. (3+9+4)

(OR)

- b) State the necessity of clutch in an automobile. Describe how a clutch mechanism operates with a sketch. (4+12)

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14. a) Explain the air-conditioning system in an automobile with a schematic. Also list the advantages of air-conditioning. (12+4)

(OR)

- b) Describe the hydraulic braking system in an automobile with a sketch. Also discuss about vacuum assisted brake booster. (12+4)

15. a) Give the significance of wind tunnel testing of vehicles. Draw a sketch of a wind tunnel testing facility and discuss how vehicles are tested in it. (4+6+6)

(OR)

- b) Draw a schematic of a chassis dynamometer and explain how vehicles are tested in it. (8+8)