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Question Paper Code : 92236

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

~~Seventh Semester~~

Mechatronics Engineering

ME 3404/080210043 — AUTOMOBILE ENGINEERING

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the use of gudgeon pin?
2. Name any two materials used in manufacturing cylinder block.
3. What is the function of slip joint in propeller shaft?
4. List out the drawbacks of sliding mesh gear boxes.
5. Define kingpin inclination.
6. Give the advantages of independent suspension system.
7. What are the methods of battery charging?
8. How many filaments does a head lamp have?
9. Give the advantages of hybrid vehicles.
10. List out any two demerits of hydrogen fuel.

PART B — (5 × 16 = 80 marks)

11. (a) Discuss the various methods of engine cooling in detail with neat sketch.

Or

- (b) Describe the various parts of a 4 stroke petrol engine with sketch.

12. (a) With neat sketch explain the working of electromagnetic clutch.

Or

- (b) Describe the working principle of torque converters.

13. (a) Describe in detail the rack and pinion type manual steering gear by means of a simple sketch and list out its disadvantages.

Or

- (b) Draw a schematic diagram showing the layout of complete air pressure system of brakes and explain the function of the master cylinder.

14. (a) With a neat sketch, explain the working of analog type speedometer.

Or

- (b) With a layout explain the function of air conditioning system provided in cars.

15. (a) Write short note on the following :

- (i) Fuel cells. (8)
(ii) Hybrid vehicles. (8)

Or

- (b) Discuss the various method of using hydrogen as a fuel in automobiles.