

B.E. DEGREE EXAMINATIONS: NOV/DEC 2010

Seventh Semester

MECHANICAL ENGINEERING

U07ME701: Automobile Engineering

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions:-

PART A (10 x 1 = 10 Marks)

1. Type of the frame section is
(A) \top Section B) \perp Section C) \vdash Section D) \perp Section
2. Firing order of six cylinders Engine is
(A) 1-5-3-6-2-4 B) 1-3-5-2-4-6 C) 1-5-4-6-2-3 D) 1-6-2-5-4-3
3. Air fuel ratio of rich mixture is
(A) 12: 1 B) 14: 1 C) 16 : 1 D) 18 : 1
4. Which one of the following item represents battery capacity?
(A) Fifteen minute Rating (B) Twenty minute rating
(C) Thirty minute rating (D) Twelve minute rating
5. Which one of the following is known as internal clutch?
(A) Single plate clutch (B) Centrifugal Clutch (C) Cone clutch (D) Diaphragm clutch
6. Purpose of overdrive is to
(A) Increase the crank shaft speed than propeller shaft speed
(B) Increase the propeller shaft speed than crank shaft speed
(C) Decrease the crank shaft speed than propeller shaft speed
(D) Decrease the propeller shaft speed than crank shaft speed
7. According to tyre designation code 145 SR-13, the speed rating is
(A) upto 170 kmph (B) upto 210 kmph (C) upto 280 kmph (D) above 280 kmph
8. In Davis Steering mechanism, steering angle is
(A) $\tan\alpha = b/l$ (B) $\tan 2\alpha = b/2l$ (C) $\tan\alpha = b/2l$ (D) $\tan 2\alpha = b/l$
9. Fuel cell reacts between
(A) Oxygen and nitrogen (B) Propane and Methane
(C) Ethanol and Methanol (D) Oxygen and Nitrogen

10. Flash point Temperature of liquid petroleum gas is
(A) -104°C (B) -104°F (C) 104°C (D) 104°F

PART B (10 x 2 = 20 Marks)

11. List some of the loads act on vachicle chassis frame.
12. State the purpose of turbo charger.
13. What is the purpose of Cut-out relay?
14. What are the various defects occurred in a simple carburetor?
15. What is the function of synchronizer in a gear box?
16. What is the function of Universal joint in a propeller shaft?
17. What are the effects of unbalancing in wheels?
18. State the advantages of ABS.
19. List the disadvantages of electric car.
20. What are the objectives of hybrid electric vehicles?

PART C (5 x 14 = 70 Marks)

21. a) Mention the various methods of lubrication system and explain any two in detail with neat sketch.

(OR)

b) List the various sensors used in an electronic engine management system and briefly explain any three sensors and their functions.
22. a) Discuss the working of a solex carburetor with neat sketch.

(OR)

b) Describe the construction and working principle of battery coil ignition system.
23. a) Describe the construction and working principle of fluid flywheel with the help of neat sketch. Also list some of its advantages.

(OR)

b) Discuss the working principal of i) Hotchkiss drive ii) Torque tube drive.
24. a) Sketch and explain construction and working principle of power steering.

(OR)

b) Explain the working of hydraulic braking system with neat sketch.
25. a) (i) Discuss the usage of Hydrogen as alternate fuel in automobile industry. (10)
(ii) Enumerate the advantages of fuel cells. (4)

(OR)

b) How bio-diesel is produced? Explain its usage in automobiles and its benefits and problems.
