

B.E. DEGREE EXAMINATIONS: MAY/JUNE 2013

Seventh Semester

MECHANICAL ENGINEERING

MEC122: Automobile Engineering

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions

PART A (10 X 1 = 10 Marks)

1. The frame may get distorted to parallelogram shape due to
 - (a) weight of the vehicle
 - (b) weight of passengers
 - (c) cornering force
 - (d) wheel impact on road obstacles
2. Lower stroke to bore ratio tends to _____ i.m.e.p
 - (a) increase
 - (b) decrease
 - (c) fluctuate
 - (d) maintain constant
3. The air fuel ratio for the maximum power is
4. The output of the alternator is controlled by
 - (a) voltage regulator
 - (b) cut off relay
 - (c) current regulator
 - (d) alternate switch
5. The clutch is located between engine and
 - (a) rear axle
 - (b) differential gear
 - (c) gear box
 - (d) universal joint
6. In the differential unit of a passenger car the gear ratio is of the order of
 - (a) 3:1
 - (b) 6:1
 - (c) 8:1
 - (d) 10:1
7. The driving wheels of a vehicle is carried by -----
 - (a) axles
 - (b) crank shaft
 - (c) crank and slider
 - (d) propeller shaft
8. Circumferential grooves are provided on automobile tyres to
 - (a) Increase load carrying capacity
 - (b) reduce danger of skidding
 - (c) prevent good traction
 - (d) to reduce couple due to load
9. is formed by blending 10% ethyl alcohol and 90% unleaded gasoline.
 - (a) benzole
 - (b) ethanol
 - (c) methanol
 - (d) gasohole
10. The power batteries that run REVA electric car
 - (a) nickel metal hydride batteries
 - (b) lithium iron sulphide batteries
 - (c) lead acid batteries
 - (d) nickel oxide batteries

PART B (10 X 2 = 20 Marks)

11. What are the various methods of oil lubrication to the engine parts?
12. List out the objective of the turbo charging.
13. Name the basic ignition system?
14. State the purpose of providing regulators.
15. Mention any four important requirements of clutch.
16. Mention the advantages hotch kiss drive.
17. Define 'bouncing' and 'pitching'.
18. What is the principle of braking system?
19. What are the fuels available for future?
20. What is Hybrid electric vehicle?

PART C (5 X 14 = 70 Marks)

21. a) Draw the layout of an automobile and indicate its various components and explain any four components.

(OR)

- b) (i) Explain the working of pressure lubrication system. (7)
(ii) Explain the operation of the typical turbocharger with sketch. (7)

22. a) What is carburetion? Explain working principle of solex carburetor.

(OR)

- b) With a neat sketch of electronic fuel injector, describe it's working.

23. a) (i) With neat sketch describe the working of sliding mesh gear box.

(7)

- (ii) With neat sketch describe the construction and working of the multi plate clutch.(7)

(OR)

- b) Discuss the following with simple sketches.

(i) Torque tube drive (7)

(ii) Principles of differential (7)

24. a) With a neat sketch explain the principle of operation of hydraulic braking system and Mention their merits and demerits.

(OR)

b) Sketch and explain construction and working principle of power steering.

25. a) Briefly describe various component incorporate with the LPG gas fuel system. State its merits and demerits.

(OR)

b) With a layout diagram explain the working features of hybrid electric vehicle.
