KUMARAGURU
college of technology
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Register Number:……

B.E DEGREE EXAMINATIONS: NOV /DEC 2014

(Regulation 2009)

Seventh Semester

MECHANICAL ENGINEERING

MEC: 122 Automobile Engineering

Time: Three hours **Maximum Marks: 100**

Answer the All questions

PART A (10 x 1 = 10 Marks)

1. The aluminium alloy is used in cylinder blocks because

   A. it is lighter and have good heat dissipation characteristics
   B. material cost is low dissipation
   C. it does not require any cylinder liners
   D. the piston is also made of aluminium alloy

2. If the engine coolant leaks into the engine oil, then engine oil

   A. appears milky
   B. becomes foamy
   C. turns grey
   D. turns black

3. The function of an alternator in an automobile is to

   A. supply electric power
   B. convert mechanical energy into electrical energy
   C. continually recharge the battery
   D. partly convert engine power into electric power

4. The battery is an electrochemical device, which means battery

   A. makes chemicals by mechanical means
   B. uses chemical action to provide electricity
   C. has curved plates instead of flat plates
   D. does not use an electrolyte

5. A clutch is usually designed to transmit maximum torque which is

   A. equal to the maximum engine torque
   B. 80 per cent of the maximum engine torque
   C. 150 per cent of the maximum engine torque
   D. 100 per cent of the maximum engine torque

6. The torque available at the contact between driving wheels and road is known as

A. brake effort
B. tractive effort
C. clutch effort
D. slip effort

7. Incorrect steering axis inclination causes
A. tendency to assume toe-out orientation
B. generation of a braking effect at tight corners
C. the vehicle to pull to the side of lesser inclination
D. poor recovery of the steering wheel after making a turn

8. The condition that causes vapour locking in a brake system is
A. overheating of the fluid due to frequent brake application
B. overcooling of the brakes during high speed driving
C. keeping the vehicle without use for an extended period
D. an excessively high engine speed on a downhill road

9. The natural gas is compressed in a CNG cylinder at a pressure of
A. 200 bar
B. 220 bar
C. 250 bar
D. 300 bar

10. Which type of hybrid uses 36 to 42 volts?
A. Mild hybrid
B. Medium hybrid
C.Full hybrid
D. Strong hybrid

PART B (10 x 2 = 20 Marks)

11. What is meant by self – propelled vehicle?
12. List the functions of catalytic converters.
13. What is carburetor?
14. What is the purpose of Cut-out relay?
15. State the functions of clutch.
16. What is the function of universal joint in a propeller shaft?
17. List the advantages of wire wheel over disc wheel?
18. What are the functions of brake lining?
19. What is meant Gasohol?
20. What is meant by a fuel cell and how it works?

PART C (5 x 14 = 70 Marks)

21. a) Explain with neat sketch the various types of chassis and discuss their advantages & disadvantages.

(OR)

	b)	(i)	What are the different types of cooling systems and explain.	(7)
		(ii)	Describe the control of emissions in SI engine.	(7)
22.	a)	(i)	Describe the working of a typical electronic fuel injection system with neat sketch.	(7)
		(ii)	Explain with a sketch the working of multi point fuel injection system.	(7)

(OR)

	b)	(i)	Describe the working of a carter carburetor with a neat sketch.	(7)
		(ii)	Describe with neat sketch the working of a three unit regulator used in automobile.	(7)
23.	a)	(i)	Explain the working principle of fluid fly wheel with the help of a Sketch.	(7)
		(ii)	Explain the mechanism of Hotchkiss drive and torque tube drive.	(7)

(OR)

	b)	(i)	Explain the sliding mesh gearbox with a suitable sketch.	(7)
		(ii)	Explain the principle and working of a differential with a neat sketch.	(7)
24.	a)	(i)	What is castor, camber and King pin inclination with respect to wheel geometry?	(7)
		(ii)	Explain the operation of a telescopic type shock absorber with a sketch.	(7)

(OR)

	b)	(i)	What are the different types of steering gears used in an automobile? Explain.	(7)
		(ii)	Explain the construction and operation hydraulic braking system with a sketch.	(7)
25.	a)	(i)	Describe the salient features of using LPG as an alternate fuel.	(7)
		(ii)	Explain the principle of operation of a series hybrid electric vehicle with a sketch.	(7)

(OR)

	b)	(i)	Explain the production of natural gas with a neat sketch.	(7)

(ii) What are the advantages and limitations of Electric vehicle? (7)

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