

Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2016

Subject Name: Automobile Systems

Subject Code: 4TE04ASY1

Branch: B.Tech (Automobile)

Semester: 4

Date: 18/05/2016

Time: 2:30 To 5:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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Q-1 Attempt the following questions:

(14)

- a) Most commonly used Power Plant on Automobiles is.....
- b) The example of a saloon is
(a) Premier Car (b) Tata Truck (c) Leyland bus (d) None of these
- c) The frame may get distorted to a parallelogram shape due to
(a) Weight of vehicle (b) Weight of passenger
(c) Cornering force (d) Wheel impact with road obstacles
- d) Which type of clutch does not require clutch pedal?
(a) Single plate (b) Multi plate (c) Centrifugal (d) Cone
- e) Which device used for transmitting increased or decreased power from one shaft to another?
(a) Hydraulic torque converter (b) Propeller shaft (c) Differential (d) Crankshaft
- f) Overdrive is placed
(a) Before gearbox (b) In between propeller shaft and gear box
(c) After propeller shaft (d) In between engine and gear box
- g) 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
- h) The torque available at the contact between driving wheels and road is known as
(a) Brake effort (b) Tractive effort (c) Clutch effort (d) None of these



- i) The gas used in modern shock absorbers are
 - (a) Nitrogen (b) Oxygen (c) Hydrogen (d) Carbon dioxide
- j) Incorrect steering axis inclination (S.A.I.) causes
 - (a) Tendency to assume toe-out orientation
 - (b) Generation of a braking effect at tight corners
 - (c) Poor recovery of the steering wheel after making a turn
 - (d) The vehicle to pull to the side of lesser inclination
- k) Most anti-skid devices are employed on
 - (a) Rear brake (b) Front brake (c) Secondary brake (d) Parking brake
- l) The brake bleeding process removes from system
 - (a) Air (b) Vacuum (c) Excess fluid (d) Excess pressure
- m) The purpose of tyre rotation on automobile is to
 - (a) Avoid ply separation (b) Equalizer wear (c) Get better ride (d) None of these
- n) In radial tyres
 - (a) One ply layer runs diagonally one way and another layer runs diagonally the other way
 - (b) All plies run parallel to one another and vertical to tyre bead
 - (c) Inner tubes are always used
 - (d) None of these

Attempt any four questions from Q-2 to Q-8

- Q-2 Attempt all questions**
- a) Describe working of centrifugal clutch with a suitable diagram. (7)
 - b) Explain the working of synchromesh type of gear box with neat sketch. (7)
- Q-3 Attempt all questions**
- a) Explain torque converter with neat sketch. (7)
 - b) Explain vacuum operation clutch with neat sketch. (4)
 - c) Describe freewheel unit. (3)
- Q-4 Attempt all questions**
- a) Explain with neat sketch the automatic transmission. (7)
 - b) Describe Selector Mechanism with gear lever on the top of transmission case with neat sketch. (7)
- Q-5 Attempt all questions**
- a) Explain rear axle shaft supporting with neat sketch. (7)
 - b) Describe with a neat sketch the hydraulic shock absorber. (7)
- Q-6 Attempt all questions**
- a) Write a note on power steering. (7)



b) What is steering geometry? Define the different terms related to the steering geometry. (7)

Q-7

Attempt all questions

a) Explain working & construction of master cylinder with figure in hydraulic braking system. (5)

b) What is tyre? What is function of it? Explain desirable properties of it. (5)

c) Explain any two carcass types of the tyre. (4)

Q-8

Attempt all questions

a) What is ABS? Explain working of ABS with neat sketch. (7)

b) Discuss in brief factors effecting tyre life. (7)

