Subject Name : Automobile Engineering

## C.U.SHAH UNIVERSITY Summer Examination-2017

## Subject Code : 4TE06AEN1 **Branch: B.Tech (Mechanical)** Semester : 6 Date :21/04/2017 Time : 02:30 To 05:30 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. Q-1 Attempt the following questions: The following components form valve operating mechanism except a) (a) Push rod (b) Rocker arm (c) Valve seat (d) Fork Which of the following is not a type of gearbox? **b**) (a) Linear mesh gearbox (b) Sliding mesh gearbox (c) Constant mesh gearbox (d) Synchromesh gearbox Another name for a torsion bar is **c**) (a) Stabilizer bar(b) strut rod (c) panhard rod (d) radius rod The overdrive consists of \_\_\_\_\_ gear train. **d**) (a) simple (b) compound (c) Epicyclic (d) Reverted The clutch plate is hold in between \_\_\_\_\_ and pressure plate. **e**) (a) flywheel (b) gear box (c) engine (d) crankshaft In four wheel drive there is (are) f)

<b>f</b> )	In four wheel drive there is (are)	(01)
	(a) no live axle (b) one live axle (c) two live axles (d) one dead axle	
<b>g</b> )	The example of a saloon is	(01)
_	(a) Premier car(b) Tata truck (c) Leyland bus (d) none of these	
h)	Lateral bending of the frame side members may be caused on account of	(01)
	(a) Weight of passengers(b) side wind (c) engine torque (d) braking torque	
i)	The torque available at the contact between driving wheels and road is known as	(01)
	(a) brake effort (b) tractive effort (c) clutch effort (d) none of these	
j)	Four-wheel drive vehicles have differential at	(01)
	(a) front wheels (b) rear wheels	
	(c) both the front and rear wheels (d) any of the front or rear wheels	
k)	Transfer case is located next to the gearbox in	(01)
	(a) Front wheel drive (b) Rear wheel drive(c) Four wheel drive (d) All of the above	. /
l)	Modern shock absorbers are	(01)

(a) Displacement sensitive (b) velocity sensitive(c) acceleration sensitive (d) None
m) Most anti-skid devices are employed on

(a) Rear brakes (b) front brakes (c) secondary brakes (d) parking brakes

n) The type of wheel which cannot be used with a tubeless tyre is

(01)
(a) Disc wheel (b) wire wheel (c) light alloy wheel (d) composite wheel



(14)

(01)

(01)

(01)

(01)

(01)

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

Q-2	(a) (b)	Attempt all questions Discuss the functions of transmission system in automobiles. Make a list of a various components mounted on the chassis. Explain briefly the various types of chassis construction with the help of suitable diagrams.	(14) (06) (08)
Q-3	(a) (b)	Attempt all questions Explain the working of a single plate clutch with the help of a simple diagram. Discuss in detail the constructional features of a clutch plate. Explain clearly the function of each major component of the clutch plate.	(14) (06) (08)
Q-4	(a) (b)	Attempt all questions Describe the working of a synchromesh gear box with the help of a sketch. Why is a synchronizer ring sometimes used in these gear boxes? What is CVT? Describe its principle of working in detail with the help of simple diagrams. Discuss its main advantages and limitations.	(14) (07) (07)
Q-5	(a) (b)	Attempt all questions Sketch a recirculating ball type steering gear and explain its working. Explain the terms: camber, castor, steering axis inclination and toe-in. what are the effects of each on the steering characteristics of a vehicle.	(14) (07) (07)
Q-6	(a) (b)	Attempt all questions Discuss in detail the procedure for overhaul of the propeller shaft. Explain the necessity of a differential in an automobile. Discuss in detail the construction and operation of the differential.	(14) (07) (07)
Q-7	(a) (b)	Attempt all questions Describe any type of mechanical brake with the help of neat sketch. What are the different types of rubber springs? Briefly explain each	(14) (07) (07)
Q-8	(a) (b)	Attempt all questions Discuss different tyre-carcass types and the materials used for them. Compare radial and bias-ply type carcass tyres. What is ECU? Explain its working. Also explain Electronic stability program in brief.	(14) (07) (07)

