Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Automobile Systems

Subject Code: 4TE04ASY1 Branch: B.Tech (Automobile)

Semester: 4 Date: 15/05/2017 Time: 02:00 To 05:00 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: (14)

a) Most commonly used power plant on automobile is
(1) I.C. engine (2) gas turbine (3) battery (4) none of these

b) The most effective section against bending is
(1) rectangular bar (2) round bar (3) round hollow tube (4) square hollow section

c) The inertia of the rotating parts of the clutch should be
(1) minimum (2) maximum (3) zero (4) none of the above

d) Increase of torque in a vehicle is obtained by
(1) decreasing speed (2) decreasing power
(3) decreasing petrol consumption (4) all of the above.

e) Two advantage of using helical gear rather than spur gear in a transmission are:
(1) High strength and low cost (2) High strength and less end thrust
(3) Low noise level and high strength (4) Low noise level and economy

f) The function of a universal joint is to allow the propeller shaft to
(1) change length (2) bend sideways
(3) transfer torque at an angle (4) change inclination

g) The type of rear axle used on truck is
(1) semi-floating (2) fully-floating (3) three-quarter floating (4) none of these

h) The vehicle ride will be comfortable if
(1) sprung weight is kept minimum (2) unsprung weight is kept minimum
(3) vehicle weight is kept minimum (4) all of the above

i) Shock absorber in an automobile is used to
(1) absorb the energy (2) increase the energy
(3) release the energy (4) dissipate the energy

j) The coil spring in wishbone suspension is placed between the
(1) two wishbones (2) upper wishbone and the cross-section
(3) lower wishbone and the cross-section (4) shock absorber and the cross-section

k) The included angle is the sum of the
(1) camber and castor (2) castor and S.A.I.
(3) camber and S.A.I. (4) camber and toe-in

l) One purpose of a recirculating ball type steering gear is to reduce the
(1) operating friction (2) operating cost (3) toe-out during turns (4) number of parts

m) Most anti-skid device are employed on
(1) rear brake (2) front brake (3) secondary brakes (4) parking brakes

n) The type of wheel which cannot be used with a tubeless tyre is
(1) disc wheel (2) wire wheel (3) light alloy wheel (4) composite wheel

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

Q-2 **Attempt all questions**

a) Discuss main components of automobile. **(04)**
b) Compare frameless construction with conventional framed construction. **(05)**
c) Write function of clutch. Explain requirement of good clutch. **(05)**

Q-3 **Attempt all questions**

a) Explain torque converter with neat sketch. **(07)**
b) Give classification of gear box. Explain gear ratio. And what is significant of higher and lower gear ratio. **(07)**

Q-4 **Attempt all questions**

a) Explain with neat sketch free wheel clutch. **(07)**
b) Discuss different types of final drive. **(07)**

Q-5 **Attempt all questions**

a) Discuss in detail the construction and operation of the differential. **(07)**
b) Classify steering systems. Explain any one of steering system with neat sketch. **(07)**

Q-6 **Attempt all questions**

a) Explain with neat sketch. Toe in and Toe out. **(04)**
b) Explain construction of leaf spring. **(05)**
c) Explain Mac Pherson strut type suspension. **(05)**

Q-7 **Attempt all questions**

a) Classify auto vehicle brakes. Compare drum brake and disk brake for automobile **(07)**

b) Discuss in detail factor affecting tyre life. **(07)**

Q-8 **Attempt all questions**

a) Draw the section of tube less automobile tyre and explain constructional features. **(07)**

b) Discuss Pneumatic Braking System. **(07)**