

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name : Automobile Systems

Subject Code : 4TE04ASY1

Branch: B.Tech (Automobile)

Semester : 4

Date : 05/05/2018

Time : 10:30 To 01:30

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) The automobile chassis consists of the engine, frame, power train, wheels, steering and
(A) The doors (B) Luggage boot (C) Wind shield (D) Braking system
- b) Which of the following section is most suitable for side long members in frame construction
(A) Channel section (B) I section (C) Hex-section (D) Tabular section.
- c) Which type of clutch does not require and operating clutch pedal.
(A) Single plate clutch (B) Diaphragm clutch
(C) Multi-plate clutch (D) Centrifugal clutch
- d) The central part of the axle beam is offset downwards to
(A) Give improved resistance to end thrusts during cornering
(B) Give better bending strength
(C) Give improved torsional strength during brake application
(D) Clear the engine sump and lower vehicle center of gravity
- e) The two basic types of axle are
(A) Dead and floating (B) Dead and live
(C) Floating and semi floating (D) All of above
- f) The following materials are almost universally used for clutch lining:
(A) Leather (B) Cork (C) Fabric (D) Asbestos
- g) The blade is torque converter have a shape which is
(A) Square (B) Round (C) Flat (D) Curved
- h) Central portion of a propeller shaft is made from a
(A) Steel shaft (B) Gun metal shaft (C) Steel tube (D) Cast iron rod
- i) The smallest gears inside the differential casing are
(A) Pinion gear (B) Sun gear (C) Side gear (D) Ring gear
- j) The steering ratio for manual steering of cars is approximately
(A) 5 (B) 15 (C) 50 (D) 100
- k) Another name for the steering link rod is
(A) Track rod (B) Tie rod (C) Drag link (D) pitman
- l) The included angle is the sum of the



- (A) Camber and caster (B) Caster and S.A.I.
 (C) Camber and S.A.I. (D) Camber and toe-in
- m) Fading of brakes occurs
 (A) At high speeds (B) At low speeds
 (C) During continuous application (D) When brake lining is worn
- n) The hand brake usually operates on
 (A) Rear wheels (B) Front wheels (C) Right wheels (D) Left wheels

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

- Q-2 Attempt all questions**
- (a) Explain in brief the vehicle layout for automobile. (7)
 (b) What do you understand by under - inflation and over - inflation? Discuss their effects on the wear of tyre. (7)
- Q-3 Attempt all questions**
- (a) Explain with neat sketch working and construction of cone clutch with its advantages and disadvantages. (7)
 (b) Explain with neat sketch working of hydraulic brake. (7)
- Q-4 Attempt all questions**
- (a) Explain with neat sketch CVT. (7)
 (b) Explain torsion bar with sketch. (4)
 (c) State the advantages and disadvantages of coil spring. (3)
- Q-5 Attempt all questions**
- (a) Explain working of Propeller shaft with neat sketch and function of each component of it. (7)
 (b) Explain following terms. (4)
 (1) Caster (2) Camber
 (c) Explain requirement of good clutch. (3)
- Q-6 Attempt all questions**
- (a) Short note on power steering. (7)
 (b) Explain gear ratio. What is significant of higher and lower gear ratio? (4)
 (c) Draw the schematic diagram of centrifugal clutch. (3)
- Q-7 Attempt all questions**
- (a) Classify steering systems. Explain one of steering system with neat sketch. (7)
 (b) Explain with neat sketch differential gearbox. (7)
- Q-8 Attempt all questions**
- (a) Short note on Independent suspension system. (7)
 (b) Explain clearly Anti-Lock Braking system. (7)

