

C.U.SHAH UNIVERSITY

Winter Examination-2018

Subject Name: Vehicle Control System and Management

Subject Code: 4TE07VCM1

Branch: B.Tech (Automobile)

Semester: 7

Date: 06/12/2018

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) Full form of ANC (1)
(A) Automatic Noise Control (B) Active Noise Control (C) Adaptive Noise Control (D) Automatic Navigation Control
 - b) ACC stands for (1)
(A) Automated cruise control (B) Adaptive cruise control (C) Automated car controller (D) Adaptive car controller
 - c) PASS stands for (1)
(A) Power automated steering system (B) Power adaptive steering system (C) Power air steering system (D) Power assisted steering system
 - d) What term describes the maximum expected error associated with a measurement or a sensor (1)
(A) Range (B) Accuracy (C) Resolution (D) Precision
 - e) The braking control type traction control system (TCS) generally operates in the speed range of (1)
(A) Less than 40 K/Hr (B) Less than 20 K/Hr (C) Less than 60 K/Hr (D) Less than 80 K/Hr
 - f) In the linkage type of power steering system, the piston rod is attached at one end to (1)
(A) Tie rod (B) Connecting rod (C) Spool valve (D) None of the above
 - g) The main function of a master cylinder is to (1)
(A) Adjust the extent of brake pedal free play (B) Boost the force applied to brake pedal (C) Convert brake pedal force into hydraulic pressure (D) All of these
 - h) Which of the following is not a component of steer by wire technology (1)
(A) Hand wheel sensors (B) Environment sensors (C) Engine control module (D) Throttle position sensor
 - i) Air flow sensor is an example of.....sensor. (1)
(A) Pressure (B) Magnetic (C) Resistance (D) Temperature
 - j) The service brakes employed in cars are generally operated (1)



- (A)Hydraulically (B) Pneumatically (C) Mechanically (D) None of these
- k) Titanium sensor it is type of (1)
 (A) Pressure sensor (B) Temperature sensor (C) Oxygen sensor (D) None
- l) A TCS in automobiles controls the (1)
 (A) Vibrations on the steering wheel (B) Engine power during acceleration (C) Torque transmitted by the tyres to the road (D) Stopping distance in case of emergency
- m) The most common used supplementary restrain system(SRS) component is (1)
 (A) Seat belt (B) Brake (C) Steering (D) Airbags
- n) Piezoelectric accelerometer it is a type of (1)
 (A) Knock sensor (B) Controllers (C) Actuator (D) Air flow sensor

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

- Q-2 Attempt all questions**
- a) Explain brake by wire technology and how its significance than conventional braking system. (07)
- b) Discuss the role of oxygen sensor in automobile and explain any one oxygen sensor with neat sketch. (07)
- Q-3 Attempt all questions**
- a) Discuss layout of steer by wire technology. (07)
- b) Explain the role of various components of chassis management system. (07)
- Q-4 Attempt all questions**
- a) List out the various types of sensors associated with automobile, where and why they are installed in automobile. (07)
- b) Define actuators and explain any one actuator with its specification, uses & sensitivity. (07)
- Q-5 Attempt all questions**
- a) Name the various types of intelligent transport system and explain any two with their limitations in terms of intelligence. (07)
- b) Explain collapsible and tillable steering column technology. Write its merits and demerits. (07)
- Q-6 Attempt all questions**
- a) Explain active suspension system and differentiate between conventional and active suspension system. (07)
- b) Discuss the features of thermal management system of automobile. (07)
- Q-7 Attempt all questions**
- a) Write the various points of anti-theft technology for better provision of security system in vehicle. (07)
- b) Discuss collision warning system and how it is useful to avoid accidents on roads. (07)
- Q-8 Attempt all questions**
- a) Compare hybrid cars and electric cars and how they are called as a future cars. (07)
- b) Explain ACC technology and write its benefits of safety and security for driver. (07)

