Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(AE) (2011 onwards)   (Sem.–6)
VEHICLE SAFETY ENGINEERING
Subject Code : BTAE-605
Paper ID : [A2384]

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION A

1. **Write briefly :**

    a) What do you mean by design of the vehicle body for safety?

    b) Name the various safety concepts.

    c) List different safety equipments.

    d) Write the full name of EBO.

    e) Name the various collision warning systems.

    f) Write the optimum distance between two vehicles to avoid the collision.

    g) List the various comfort and convenience systems.

    h) Define crumple zone.

    i) What are the functions of air bags in a vehicle?

    j) What is the role of bumper in safety of a vehicle?

SECTION-B

2   What is the meaning of proper engine location? On what parameters the engine location in a vehicle depends?

3   Explain following :

Active safety, Conditional safety, Interior safety and Perceptibility safety.

4   Explain the working of automatic seat belt tightening system with the help of neat sketches.

5   Write the various causes of rear end collision. Explain in details.

6   Describe with the help of neat sketches, the working of garage door opening system employed in cars.

SECTION-C

7   What is the effect of speed on vehicle stability on road? Discuss in details.

8   a) What do you mean by deceleration of vehicle? Describe the deceleration on impact with stationary and movable obstacles.

b) Explain the deformation behaviour of vehicle body after collision. Also suggest the correcting measures.

9   Write short note on **any two** of the followings :

a) Environmental Information system

b) Rear vehicle object detection system

c) ESP