

**B. Tech. (AE)****Vehicle Safety Engineering****BTAE-605**

Time Allowed: 03 Hours

Max. Marks: 60

Note: The question paper consists of *three sections*. **Section A** is compulsory. Candidates are required to attempt any four questions from **Section-B** and any two questions from **Section-C**.

Q. No.	Section-A	Marks
1(a)	On what parameters the engine location in a vehicle depends?	2x10=20
(b)	Write the full name of ESP?	
(c)	What are the various uses of air bags?	
(d)	What do you mean by pedestrian collision detection system?	
(e)	Write the optimum distance between two vehicles to avoid the collisions?	
(f)	What are the limitations of central locking system?	
(g)	Name the various safety concepts?	
(h)	Where air bags are installed in a vehicle? Give reasons for its location also?	
(i)	Write the advantages of tilt able steering wheel?	
(j)	Define vehicle body engineering?	
	<b>Section-B</b>	<b>5x4=20</b>
2	Define and explain crumple zone of a vehicle?	
3	Explain following terms: driving safety, conditional safety, passive safety and perceptibility safety?	
4	Explain the working of anti lock braking system with the help of neat sketches?	
5	Name the various devices used for frontal object detection to avoid collision? Explain one in detail with the help of neat sketches?	
6	Describe with the help of neat sketches, the working of rain sensor system employed in cars?	
	<b>Section-C</b>	<b>10x2=20</b>
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 behavior of vehicle body after collision? Also suggest the correcting measures.	
9	Write short note on any two of the followings: (a) Tyre pressure control system (b) Rear vehicle object detection system (c) EBD	

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