

Name:

Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2023**

**Course:** Automotive Technology

**Program:** M.Tech, E Mobility

**Course Code:** MEEM7002

**Instructions:**

**Semester:** I

**Time** : 03 hrs.

**Max. Marks:** 100

**SECTION A**  
**(5Qx4M=20Marks)**

S. No.		Marks	CO
Q 1	Present a broad classification of the types of automobiles.	4	CO1
Q.2	Enlis the major component of the automobile & system	4	CO1
Q.3	What are the different types of clutch explain	4	CO2
Q.4	Compare the two-wheeler and four-wheeler safety based on features provided.	4	CO2
Q5	What is Coast down test? What all can be evaluated through this test? What ambient conditions are specified for this test?	4	CO2

**SECTION B**  
**(4Qx10M= 40 Marks)**

Q.6	What are the different types of gearbox used in automobiles. With the help of neat diagram explain the functioning of Sliding Mesh Type of gear box	10	CO3
Q.7	What are the different elements of a automotive suspension system. Discuss the details, types and importance of springs in suspension system.	10	CO3
Q.8	Classify brakes. With the help of neat diagrams differentiate between the hydraulic and mechanical brakes.	10	CO2
Q.9	What is NCAP, what are the different variants of NCAP used worldwide? What are some of the important test in NCAP?	10	CO3

OR

Q.10	Categories the below mentioned safety systems used in automobiles into passive and active safety system Anti-lock braking system (ABS), Airbag (AB), Seat Belt (SB), electronic stability control (ESC), adaptive cruise control (ACC), tire pressure monitoring system (TPMS), occupant sensing systems (OSS), lane departure warning (LDW), night	10	CO3
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	vision system (NVS), blind spot detection system (BSDS), driver monitoring (DM), road sign recognition (RSR), automatic emergency braking (AEB), child safety system (CHS), pedestrian safety system (PSS), Seat belt, Anti-collision system.		
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b>			
Q 11	What are the different types of chassis? With the help of neat diagram elaborate, the salient features of each. Which types of chassis is commonly used in the current generation passenger vehicles.	<b>20</b>	<b>CO4</b>
Q.12	(a) Differentiate between flywheels and Governor. Draw the Torque-Theta Diagram of a four stroke diesel engine (b) Explain the law of gearing and its importance	<b>20</b>	<b>CO4</b>
<b>OR</b>			
Q.12	How to evaluate steering effort of an automotive vehicle? Explain in detailed how the steering effort tests are conducted on vehicle in order to get the approval for conformity of production.	<b>20</b>	<b>CO4</b>