

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2023

Course: Auto Cert. and Homologation

Semester: VIII

Program: B.Tech ADE

Course Code: MEAD-4007P

Time : 03 hrs.

Max. Marks: 100

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Enlist the any five-vehicle level and component level testing performed for the BoV-two-wheeler certification	4	CO1
Q.2	Define the following terms in case of Vehicle Testing A) Gradeability at GVW B) Grade-Re-Start ability at GVW	4	CO1
Q.3	List five important functions of front and rear windscreens and window glasses. What are the important test requirements for its COP.	4	CO2
Q.4	What is Coast down test? What all can be evaluated through this test?. What ambient conditions are specified for this test?	4	CO2
Q5	What is New European Driving cycle (NEDC) how is it different from Modified Indian Driving Cycle (MIDC)	4	CO3

SECTION B
(4Qx10M= 40 Marks)

Q.6	Explain two and four wheelers testing on chassis dynamometers.	10	CO3
Q.7	Performance of automotive brakes is very important from vehicle and pedestrian safety perspective. To ensure the proper functioning of brakes, it has to pass through various testing procedure in sequence. Explain in detail.	10	CO3
Q.8	TATA-NEXON with 2 Airbags has achieved 5-star rating in global NCAP and become the first 5-star rated car in India in safety of Adult occupant protection. It has achieved 16.00 maximum marks out of 17.00. However, the same hatchback achieved 2-star rating in child occupant protection safety. It has achieved 25 maximum marks out of 49.	10	CO2

	<p>Comment on the below mentioned in detail.</p> <p>A. vehicle's 5-star in Adult occupant protection</p> <p>B. Any additional safety features missing in TATA-Nexon which make it 2-star rated in child safety protection.</p>		
Q.9	Explain in detail various seat belt test performed on vehicles for the safety of occupants.	10	CO3
	OR		
Q.10	<p>Categories the below mentioned safety systems used in automobiles into passive and active safety system</p> <p>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 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)</p>	10	CO3
<p>SECTION-C</p> <p>(2Qx20M=40 Marks)</p>			
Q 11	A horn manufacturing company has manufactured a horn to be installed in passenger vehicle. Explain the Homologation and certification guidelines to be fulfilled for its approval.	20	CO4
Q.12	<p>Write in Detail about the following</p> <p>(a) Speedometer requirements, COP & calibration</p> <p>(b) Turning circle Diameter test and procedure</p> <p>(c) Elaborate 70% Gradeability and find the angle of the slope tested for</p>	20	CO4
	OR		
Q.12	Categories and write in detail the about all safety concerns in a passengers segment vehicle. Also, highlight the latest safety updates and mandates for improving the safety standards.	20	CO4