

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

Online End Semester Examination, December 2020

Programme Name: B.Tech ADE

Semester : VII

Course Name : Two wheeler and three wheeler Tech

Time : 03 hrs

Course Code : ADEG-413/MEAD402

Max. Marks: 100

Nos. of page(s) :

Instructions:

SECTION A

1. Each Question will carry 5 Marks

S.N		Marks	CO
1	Swing arm suspension is mostly preferable in auto rickshaw, agree or disagree? Justify	5	CO4
2	Define the terms A. Squat B. Dive	5	CO2
3	It is important to set the optimum charging time and charging rate of two wheeler batteries of electric vehicle, give your comments.	5	CO1
4	Briefly Explain the significance of Drag in vehicle.	5	CO5
5	Explain the Backpressure effect of exhaust gas on engine performance of vehicle.	5	CO3
6	Enlist the factors affecting the stability of any vehicle.	5	CO2

SECTION B

1. Each question will carry 10 marks

2. Instruction: Write short / brief notes

7	As an engineer, you need to select the appropriate components for the electric two-wheeler to be used in hilly region. Justify your selection. A. Direct Drive or Indirect drive B. Electric Motor Battery balancer or Battery management system	10	CO4
8	Select the below mentioned components to draw the layout of three-wheeled passenger vehicle. Engine, clutch, gear box, crank shaft, final drive, rear wheels, drive axle, primary drive, UV joints, differential box, transmission box, propeller shaft, hub.	10	CO1

9	Explain the importance of battery balancer and battery management system in high performance electric two-wheeler.	10	CO3
10	Differentiate delta and tadpole steering system used in three wheelers.	10	CO5
11	Compare and discuss the street commuter with sports bike on the basis of following parameters A. Center of gravity B. Type of frame C. Braking system D. Handle bar	10	CO5

SECTION C

1. Each Question carries 20 Marks.

2. Instruction: Write long answer.

12	Discuss the importance of below mentioned entities while designing the two-wheeler suspension system. A. Suspension frequency B. Sprung and unsprung mass ratio C. Cornering requirements D. Spring rate and total wheel travel E. Wheelbase <p style="text-align: center;">OR</p> As a design engineer, you have been asked to discuss the important parameter need to be consider while designing hydraulic braking system for two-wheeler sports bike based on the following entities. A. Braking Disc B. Calipers C. Unsprung weight D. Forces which produce braking deceleration	20	CO4
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