Name: **Enrolment No:**	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: ADEG 413 / Two and three wheeler technology **Semester: VII**
Programme: B.Tech/ ADE
Time: 03 hrs. **Max. Marks: 100**
Instructions:

SECTION A
(Answer all the questions.) **(5x4=20 Marks)**

S. No.		Marks	CO
Q 1.	Draw the layout of hand operated mechanical brake foot operated mechanical brake.	**4**	**CO2**
Q 2.	Give brief classification of two wheeler engines	**4**	**CO1**
Q 3.	Classify the different type of front and rear suspension system of two wheeler and three wheelers	**4**	**CO3**
Q 4.	With suitable example, enlist the different types of three-wheeler with respect to use, fuel, wheel and steering configuration.	**4**	**CO1**
Q 5.	State special features about the three different types of wheels used in two wheelers.	**4**	**CO2**

SECTION B
(Attempt all questions. All questions carry equal marks) **(4x10=40 Marks)**

Q 6.	Explain the construction and working of ignition system of two wheelers a) Capacitive discharge ignition system (Or) b) Electronic ignition system	**10**	**CO4**
Q 7.	Determine the angle of heel required if motor cycle negotiate a curve of radius 120m at a speed of 110 km/hr. The mass of the motor cycle along with the rider is 210 kg. The height of Center of gravity of total mass is 64 cm above the ground when it is moves straight each wheel has diameter of 73 cm and polar mass of inertia of each wheel is 3 $kg.m^2$. The engine rotates at a speed 5 times the road wheel and engine-rotating parts has polar Moment of inertia 0.3 kgm^2.	**10**	**CO5**
Q 8.	Describe the special characteristics of different types of loading auto rickshaws with neat sketch.	**10**	**CO1**
Q 9.	Explain with aid of neat sketch braking systems of Auto rickshaw.	**10**	**CO2**

SECTION-C
(Attempt all questions. All questions carry equal marks) **(2x20=40 Marks)**

Q 10.	Enlist the major components of three wheelers and Explain with aid of neat sketch the following system of three wheelers	**20**	**CO3 &**

	a) Rear suspension system for Passenger auto rickshaw b) Transmission system of Loading auto rickshaw (Or) c) Rear suspension system for Loading auto rickshaw d) Transmission of Passenger auto rickshaw		**CO1**
Q 11.	Enlist the various parameters of steering geometry and with aid of neat sketch describe the steering geometry and its effects of two-wheelers.	**20**	**CO4**