

Name:

Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2022**

**Program Name: B.TECH-EL**

**Course Name : Mechanical System of E-Vehicles**

**Course Code : MECH4031P**

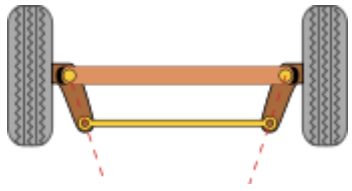
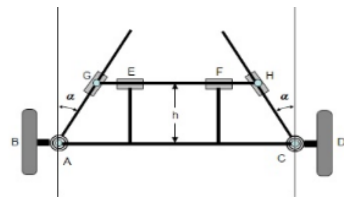
**Nos. of page(s) : 02**

**Semester : VII**

**Time : 03 hrs.**

**Max. Marks: 100**

**SECTION A**

S. No.	Statement	Marks	CO
Q 1	Identify the following mechanisms of steering system given in Figure 1 and 2.  <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Figure 1</p> </div> <div style="text-align: center;">  <p>Figure 2</p> </div> </div>	4	CO1
Q 2	Explain following terms in brakes a) Brake Bleeding b) brake fade	4	CO2
Q 3	What should be the characteristics of propeller shaft in dynamic conditions?	4	CO2
Q 4	Compare oversteer and understeer conditions in automobile with application.	4	CO2
Q.5	Explain briefly: the importance of tyre sequencing in the vehicle.	4	CO1

**SECTION B**

Q 6	Explain the Purpose of Vehicle structure and also explain type of sections used for the chassis side members.	10	CO2
Q7	Explain the double wishbone suspension system used in off road vehicles.	10	CO2
Q8	Describe the advantages and disadvantages of radial tyre over bias-ply tyre.	10	CO2
Q9	Explain the important function of automobile clutch and also explain in detail semi-centrifugal clutch used in automobiles.	10	CO3

**SECTION-C**

Q 10	A) Draw neat sketch of master cylinder and explain its working. B) Tandem master cylinder is preferable in automobiles, Justify C) DOT 5 brake fluid is better than DOT 3 and DOT 4, Explain	20	CO4
Q 11	Explain how full floating axle as shown in following Figure is better than the semi-floating and three-quarter floating axles?	20	CO5

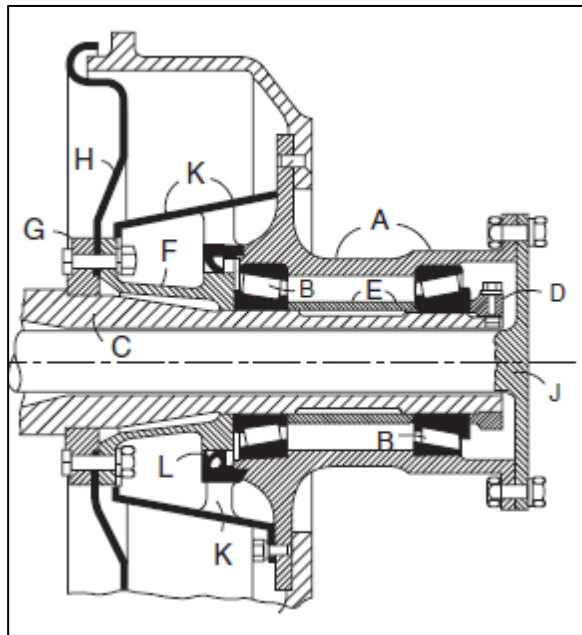


Figure : Full floating Axle

Or

A. Analyze the different steering conditions shown in Figures 1, 2 and 3

B. Draw and discuss a single graph of steering angle Vs Speed for all figures

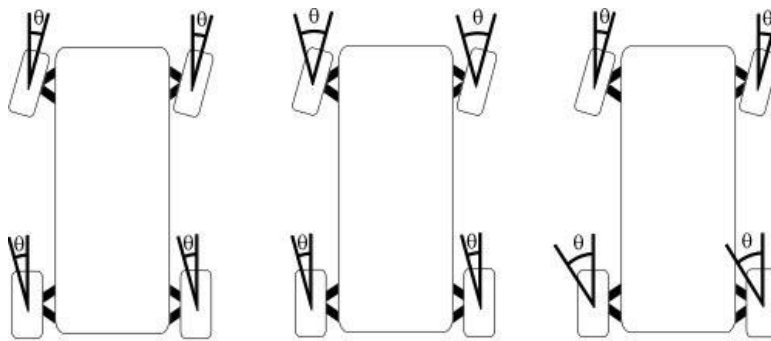


Figure 1

Figure 2

Figure 3