**UNIT I**

PART A

1. What is kinematic chain   
 2. What is vector  
 3. What is degree of freedom ?  
 4. What is Rectilinear motion?

5. What is mechanism

6. What is kinematic Pair?

7.what DOF ?

8. what is couple

9. define kinematic link

PART B

1. Describe with a neat sketch the inversion of a single slider crank chain mechanism.

2. In a four bar chain ABCD,AD is fixed and 150mm long, the crank AB is 40mm long and rotates at 120rpm.while the link CD=80mm oscillates about D. BC and AD are of equal length. Find the angular velocity of link CD when angle BAD=60°

3. Define Inversion. Sketch and explain the inversions of a four bar mechanism

4. write a short notes on types of a constrained motions

5. The crank of a slider crank mechanism is 15cm and the connecting rod is 65cm long, the crank makes 310 rpm in the C.W direction when it has turned through 45° from IDC position, locate all the instantaneous centers and determine the velocity of the slider .

6. write a short notes on classifications of a kinematic pairs

7. explain about various kinematic pairs

8. explain about various constrained motions

**UNIT II**

PART A

1. what is acceleration of a slider

2. what is Instantaneous center

3. what is centrodes

4. what is curvilinear motion

5. Define about machine

6. Define rigid link

8. what is grublers relation?

9.what is grublers criteria?

PART B

1. Explain the velocity diagram of a rigid link by graphical method.

2. The crank of a slider crank mechanism is 15cm and the connecting rod is 65cm long, the crank makes 310 rpm in the C.W direction when it has turned through 45° from IDC position, locate all the instantaneous centers and determine the velocity of the slider

3. Explain motion of link in machine

4.explain about types of instantaneous centers

5. Explain Klein’s construction?

6. what is instantaneous center method and it' s types

7. write brief notes on klein's construction

8. write short notes on velocity and acceleration diagrams and it's methods

**UNIT III**

PART A

1. What is straight line motion mechanism

2. write the applications of a Hooke’s joint.

3. Define Hooke’s joint

4. what is velocity ratio

5. what is universal joint

6. Name types of a straight line motion mechanisms

7. define universal coupling

8. state application of hook's joint

PART B

1. Explain Davis steering gear mechanism?

2. Define straight line motion mechanism. And explain Hart’s mechanism with a neat sketch.

3. Write the differences between Davis steering gear mechanism and Ackermann’s steering gear mechanism

4. Explain about Ackerman steering gear mechanism

5. Explain the condition for correct steering gear mechanism

6. What is pantograph? Give any two applications of pantograph.

7. with neat diagram explain about universal joint

8. write short notes on any steering gear mechanism

**UNIT IV**

PART A

1. what is cam

2. what is follower

3. Define angle of ascent

4. define dwell period

5. define uniform velocity

6. define angle of descent

7. define angle of raise

8. define angle of retardation

PART B

1. What are the different types of follower motions used in cam-follower mechanism?

2. write a short notes on cams

3. Define Cam& Explain classification of Cams.

4. Draw Displacement, Velocity & Acceleration diagrams when the follower moves with uniform Acceleration & Retardation

5. The following data relate to a cam profile in which the follower moves with uniform acceleration and retardation during ascent and descent. The min radius of a cam is 25 mm, roller diameter is 7.5 mm, lift is 28 mm and offset of follower axis is 12 mm towards right.

Angle of ascent =600

Angle of descent=900

Angle of dwell between ascent and descent is 450. The speed of cam is 200 rpm. Draw the profile of the cam and determine the maximum velocity and uniform acceleration of the follower during the outstroke and return stroke.

6. explain the method to draw a velocity diagram for a knife edge follower moving with a uniform velocity and acceleration

7. write brief notes on types of followers

8. write short notes on types of cams

**UNIT V**

PART A

1. what is gear train

2. what is velocity ratio in simple gear train

3. what is addendum

4. what is module of a gear

5. what is pitch circle diameter of agear

6. what is the purpose of gear train in automobile

7. define a gear

8. define a path

PART B

1. Explain the principle of working of an epicyclic gear train

2. Explain gear tooth terminology

3. Explain briefly simple and Compound gear train and gear trains.

4. Explain classification of toothed wheels ?

5. Explain Reverted gear train with neat sketches

6. Explain about law of gearing

7. explain velocity ratio for compound gear train

8. explain classifications of gears