(d) What is pitch circle and pitch diameter in context to gear ?

(e) Draw a rough sketch of simple gear train with one drive and one driven roller.

(f) Write about speed ratio and related formulas in terms of speed and number of teeth.

(g) How the maximum fluctuation of energy is calculated in context to fly wheel ?

(h) Give *two* examples of the cam and followers in textile machineries.

(i) Write a formula to calculate the circular pitch of the gear.

(j) Write a formula to calculate the diametral pitch of the gear. **2×10=20**

Roll No. ..... **Total Pages : 04**

J-21-0010

B. Tech. EXAMINATION, 2021

Semester V (CBCS)

THEORY OF TEXTILE MACHINES

TE-501

Time : 2 Hours *Maximum Marks : 60*

The candidates shall limit their answers precisely within 20 pages only (A4 size sheets/assignment sheets), no extra sheet allowed. The candidates should write only on one side of the page and the back side of the page should remain blank. Only blue ball pen is admissible.

Note : Attempt *Four* questions in all, selecting *one* question from any of the Sections A, B, C and D. Q. No. **9** is compulsory.

Section A

1. (a) Explain the classification of Kinematic pairs according to types of relative motion between the elements, contact between the elements and type of closure. **5**

(b) Explain the Kinematics of chain for the arrangement of three link. **5**

2. (a) Explain the Velocity of a Point on a Link by Instantaneous Centre Method using mathematical expression and suitable sketch. **7½**

(b) Classify the instantaneous centers and also write its important properties. **7½**

Section B

3. (a) Explain the construction of V-belt with neat sketch also gives the advantages and disadvantages of V-belt drive over flat belt drive. **5**

(b) Derive the mathematical formula for the ratio of the driving tensions for V-belt. **5**

4. Give the classification of the Gears with neat sketches according to position of axes of shaft, types of gearing and position of teeth. **10**

Section C

5. Explain the different types of gear trains with neat sketches namely : (i) Simple gear train, (ii) Compound gear train, (iii) Reverted gear train and (iv) Epicyclic gear train. **10**

6. Explain with sketches the different types of cams and followers.

Section D

7. (a) Explain the Turning Moment Diagram for a Single Cylinder Double Acting Steam Engine. **7½**

(b) Explain the Turning Moment Diagram for a Four Stroke Cycle Internal Combustion Engine. **7½**

8. Explan any *two* examples of application of belts and *two* examples of application of chain drive used in textile machineries and explain the use of ratchet wheel in any *one* textile application. **10**

(Compulsory Question)

9. (a) Write about rigid and flexible link.

(b) Write a formula for number of instantaneous centers in a mechanism.

(c) What is angle of obliquity and the addendum in context to gear ?