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BT-6 / M12

THEORY AND DESIGN OF TEXTILE MACHINERY

Paper–TT-312

Time allowed : 3 hours] *[Maximum marks : 100*

Note : Attempt five questions in total, with at least one question from each unit.

Unit–I

1. (a) Mention the types of chain drives. Draw a suitable chain and sprocket drive and label the different parts. 10

   (b) Write the relative advantages and disadvantages of chain and belt drive. 5

   (c) What do you mean by Belt chain drive and polygonal effect ? 5

2. (a) What do you mean by Epicyclic gear train ? Discuss with a neat sketch. 10

   (b) Discuss the force analysis of gear drive. 10

Unit–II

3. (a) Discuss the different type of cams and followers with sketches. 10

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   (b) What is centrifugal clutch ? Discuss what are its advantages. 10

4. (a) Give a complete classification and respective uses of Ball bearings. 6

   (b) Draw a Roller bearing and label its different small parts. 8

   (c) Suggest some lubrication processes to improve Bearing Life. 6

Unit–III

5. (a) Give an example in Textiles where strain energy is used as the source of one important motion. Draw and describe it. 12

   (b) What is Bending Rigidity ? What is its importance in Textile material ? 8

6. (a) What is 'Tensile Strength' of a material ? Why it is important in textiles ? 8

   (b) What do you understand by 'compressive' behaviour of a material ? When the compressiveness is considered as very important feature of textile materials ? Give examples and justify. 12

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Unit–IV

7. (a) Show that Sley motion is not a simple Harmonic Motion (Establish mathematically). 10

   (b) What is 'Sley eccentricity' ? Why higher values of eccentricity are not preferred ? 10

8. (a) Draw a Knitting Cam suitable for sinker body machine. Label all the portion and paths of it. 10

   (b) How the estimation of needle velocities are done ? Describe. 10