Register Number: ………………..

B.TECH DEGREE EXAMINATIONS: APRIL 2015

(Regulation 2009)

VI-Semester

TEXTILE TECHNOLOGY

TTX115-Mechanics of Textile Machinery

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The nature of drive between driver and driven is rigid in

    a) Belt drive
    b) Chain drive
    c) Gear drive
    d) Cam drive

2. The speed ratio between 20 teeth wheel driver and 80 teeth driven wheel is

    a) 4
    b) 0.25
    c) 16
    d) 5

3. In a cone drum drive system the following condition should be kept

    a) $d_1 + d_2$ = constant
    b) $d_1 - d_2$ = constant
    c) $d_1 d_2$ = constant
    d) d_1 / d_2 = constant

4. In a PIV gear box speed ratio

    a) can be changed Step by step
    b) can be changed continuously
    c) Can only be increased
    d) Can not be changed

5. The final velocity v is given by

    a) $u + at$
    b) $u - t$
    c) ut
    d) $u + t$

6. Newtons law of motion says that

    a) $F = m/a$
    b) $F = ma$
    c) $F = a/m$
    d) $F = m + a$

7. Work done by a force is

    a) Force-distance
    b) Force+distance
    c) Force x distance
    d) Force/distance

8. Potential energy is equal to

   a) mv

   b) mgh

   c) m/gh

   d) mv½

9. In a negative let off motion the following principle is applied

   a) Static friction

   b) Sliding friction

   c) Rolling friction

   d) Coil friction

10. In acceleration the speed

    a) Increases

    b) decreases

    c) Remains constant

    d) Becomes zero

PART B (10 x 2 = 20 Marks)

11. If the diameter of motor pulley is 10cm and the diameter of loom pulley is 50cm and if the motor runs at 960rpm,calculate the loom speed assuming no slippage

12. What is the purpose of rack and pinion?

13. Mention the names of different cams used in textile machinery

14. What is the function of cone drum in blow room?

15. A particle starts with zero initial velocity and with an acceleration of 10cm/s² calculate the final velocity after 100seconds.

16. What is meant by momentum?

17. What is kinetic energy?

18. Give two examples for potential energy.

19. What is the function of clutches?

20. What do you mean by coefficient of friction?

PART C (5 x 14 = 70 Marks)

21. a) Describe the working of on Epicyclic gears used in textile machines

    (OR)

    b) Give a detailed note on the different types of gears used in textile machines

22. a) Describe the scutcher cone drum design and construction with a diagram by assuming relevant data?

    (OR)

    b) Give a detailed note on the different types of cams used in textile machines

23. a) Explain the Newtons law of motions in detail.

(OR)

b) Calculate the power required for picking from the following data:

   Width of the warp sheet in read   : 1.5meter

   Effective length of shuttle   : 30cm

   Loom speed   : 220 picks per minute

   Shuttle Weight   : 550g

   Shuttle enters the shed   : 120°

   Shuttle leaves the shed   : 255°

24. a) Find out the total force acting on the bottom callender roller from the given data. Weight of top callender roll is 50kgs.Distance between fulcrum to callender roll is 20cm. Distance between fulcrum to dead weight is 100cm.Weight of dead weight is 10kgs.

(OR)

b) Describe the working principle of heald reversing system in a loom with a diagram.

25. a) Describe the working principle of cone clutches with a diagram

(OR)

b) Describe the working principle internal expanding shoe brakes and their application in textile machines.

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