



SF-7905

B. E. IV (Sem. VIII) (T.T.) Examination

May / June - 2011

Textile Production Management

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
B. E. 4 (Sem. 8) (T.T.)

Name of the Subject :
Textile Production Management

Subject Code No. : 7 9 0 5 Section No. (1, 2,.....) : Nil

Seat No. :

Student's Signature

(2) Figures to the right indicate full marks.

- 1 (a) Fill in the blanks : 10
- Generation of static charges decreases with _____ in humidity in man-made fibres.
 - _____ is used to maintain humidity and temperature in indirect system of humidification.
 - The diameter of yarn is given by _____ in Law's Expression.
 - Number of intersections in a repeat is always two for _____ weave.
 - Machines are arranged in group in case of _____ layout.
 - With increase in humidity, swelling of fibres_____.
 - _____ is preferable for maintaining humidity in Loom Shed.
 - Back tracking is the main problem in case of _____ layout.
 - Density of polyester fibres is_____.
 - The ratio of Actual picks inserted to Nominal picks is called_____.
- (b) Prove that the space occupied by one intersection i.e. $p = \sqrt{3/2} (d_1 + d_2)$. Use this relationship to calculate the thread densities for a fabric having 1/2 2/2 twill weave using 40^s x 36^s yarn counts. Assume suitable data. 10

- 2 Calculate weaver's work load, loom allocation and optimum loom efficiency if the frequency of warp breaks, weft breaks, shuttle changing and weft replenishment observed for 80000 picks are 11, 08, 30 and 41 respectively for a loom running at 155 rpm. How many such looms are to be installed to produce 70000 metres of fabric per day of $30^s \times 36^s$, 80 x 52 quality of fabric. Calculate number of operators to be required to run this weaving unit with 75% efficiency. Assume suitable data. 15

OR

- 2 Calculate : 15
- (i) running efficiency
 - (ii) mass of yarn on full beam
 - (iii) mass of yarn on supply package
 - (iv) number of warping machines required to supply feed material to a weaving unit having 350 Airjet Looms. Use following details :
 - M/c speed - 750 mts/min
 - No. of ends/beam - 450
 - set length - 25000 mts
 - End breakage rate - 0.30 / 1000 ends / 1000 mts
 - Time required to mend one end break - 0.45 min
 - Time required to change full beam - 4.6 min
 - Time required to change creel - 12 min
 - Yarn denier - 70
 Assume suitable data.
- 3 Write short notes on : (any three) 15
- (i) Influence of humidity on processing of materials in different departments.
 - (ii) Different types of weaving efficiency
 - (iii) State and compare different material handling systems
 - (iv) Central air washer humidification plant
- 4 (a) Answer the following :
- (i) If cotton selected is 1.25 inch long for weft yarn, calculate T.M. and % contraction. 2
 - (ii) Calculate gauge of Speed frame for staff of 4 in 480 and draw the same. 2
 - (iii) If the lap weight is 14 oz/yard, calculate tex of lap. 2
 - (iv) Explain the terms 'Depreciation' and 'Obsolescence'. 2
 - (v) What is a 'Break Even point' ? Explain briefly with diagram. 2
- (b) Prepare a spin plan for producing 20s Ne warp and 24s Ne weft on Rotor Spinning machine using 1 inch staple. 10

- 5 (a) Following data refers to Speed Frame Department of a mill : 9
- Spindle RPM - 1200
 - Hank of roving - 1.1
 - Weight of roving on package - 700 gms
 - T.M. 0.9
 - Efficiency - 88%
 - Number of spindles on machine - 160
- Calculate :
- (i) Production in terms of Kgs/shift
 - (ii) Length of Roving on Package
 - (iii) Number of Doffs/shift
- (b) Using Reducing Balance method, calculate depreciation for the first 6 years if the instrument is purchased for Rs. 30,000 and has average life span of 20 years. The estimated scrap value is Rs 5,000. 6
- OR**
- 5 (a) Prepare a production schedule to produce 800 kgs warp/shift and 600 kgs. Weft/shift for 64s Ne Semi Combed yarn using 1.5 inch cotton fiber. If the trash removed at Blow Room is 6% calculate Input at Blow room. 10
- (b) If Ring frame department has 25 machines, each having main motor of 3.5 HP and 1.5 HP auxiliary motor. Calculate power cost/month is rate of unit is Rs. 8/- and load factor is 0.75 and efficiency is 88%. 5
- 6 Write short notes on : (any three) 15
- (i) Fire safety in textile mills
 - (ii) Selection of T.M. for blends
 - (iii) Depreciation - Its meaning and Causes
 - (iv) Causes of pollution and its Control in textile mills.