Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII(OLD) • EXAMINATION – WINTER 2016

Subject Code: 172903 **Date: 21/11/2016**

Subject Name: Production Planning & Maintenance

Time: 10:30 AM to 01:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** A cloth 44.5 inch wide (including selvedge is woven with 72^S reed , 36^S warp, 42^S weft, 66 PPI, Denting = 2 ends/dent in body , 4 ends/ dent in selvedge, Selvedge are ¼ inch on each side. Length of cloth piece = 120 yards, Contraction = 6%. Calculate total weight of fabric and total ends in a fabric. **07**

(b) Prepare spin plan to produce carded yarn of 34^S Ne warp and 36^S Ne weft on modern spinning line, If hank of lap fed is 0.0018 and TM is 4.0 for warp and 3.8 for weft. **07**

Q.2 **(a)** Calculate the no of comber machine required for the production 2000 kgs sliver per shift from the following data. Feed/nip = 5.2 mm, Nips/min = 400, Lap weight = 68 grams/meters, Noil= 16%, No of heads = 8, Efficiency = 90 %. **07**

(b) Calculate the number of warping machine to be required to supply beams per day to the sizing unit have 5 sizing machine if the warping machine speed is 500 meters/min. using 38^S yarn count and efficiency 50%. Assume set length of 28000 meters and 450 ends/beam. Use following detail for sizing machine. Ends/beam = 2400, Length of warp sheet per beam = 250 meters, Speed = 52 meters/min, Efficiency = 52%. **07**

OR

(b) Discuss daily, weekly, Monthly and yearly check points for ring frame machine. **07**

Q.3 **(a)** Calculate time required to produce cone weighing 2.5 kgs. Average drum speed = 5000 rpm, Drum diameter = 3 inch, Slippage = 5%, Efficiency = 75%, Count of yarn = 40^S Ne. **07**

(b) A texturising plant has following requirement per day. **07**

Count (Denier)	Production in kgs.
80/36/0	750
80/36/300	250

Texturising speed: 600 meters/min & Efficiency = 95 %, TFO speed: 11000 rpm &Efficiency = 90%, Twist Contraction % =7. Calculate no of spindle of Texturising and TFO machine.

OR

Q.3 **(a)** An Open end spinning plane has following requirement per month. Calculate no of Open end spindle required to produce following count. **07**

Count	Requirement in kgs	Twist Multiplier	Rotor speed	Efficiency
6^s Ne	80,000	4.8	70,000	95%
9^s Ne	65,000	4.7	75,000	96%

	(b)	State the importance of maintenance in weaving industries. Explain in detail the weekly, Monthly and quarterly/yearly check point for sizing machines.	**07**
Q.4	**(a)**	Find out linear weight /meter and GSM of a worsted fabric from following data. Warp/weft = 100^S Nm /80^S Nm, EPI /PPI = 110 / 74, Length contraction = 8%, Reed space = 68 inch.	**07**
	(b)	Calculate time required to exhaust one roving bobbin on ring frame machine form the following data. Spindle speed = 12000 rpm, Weight of roving bobbin = 1 kg, TPI = 22, Draft =25, Efficiency = 80%.	**07**
		OR	
Q.4	**(a)**	Calculate the total quantity of cotton required for the following mixing. Mixing : 28^S carded yarn = 1000 kgs 36^S combed yarn = 800 kgs.	**07**
	(b)	Calculate the number of winding drums of super speed winding machine required to supply 4 modern high speed warping machine. The speed of warping machine is 600 meters/min, efficiency is 70%. The no of ends on each beam is 400. The speed of winding machine is 1000 meters/min and efficiency = 70%.	**07**
Q.5	**(a)**	Calculate time required to exhaust one lap on carding machine form the following data. Lap length =45 yards, Draft between doffer & feed roller =80, Doffer diameter =27 inch, Doffer rpm = 20, Efficiency =80%.	**07**
	(b)	Calculate the number of sizing machine running at 60 meters/min with 50% efficiency to be required to supply sized beam to the unit having automatic shuttle looms producing 5.0 lac meters of following variety of fabric per month. Reed /pick = 84/52, Warp/weft = 32/38, Fabric width = 50 inches.	**07**
		OR	
Q.5	**(a)**	State the important aspect of maintenance in carding machine.	**07**
	(b)	State the importance of maintenance in warping department. Explain in detail the weekly, Monthly and quarterly/yearly check point for warping machines.	**07**

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