

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019

Subject Code: 2172903**Date: 26/11/2019****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.

		MARK
Q.1	(A) Convert 100 tex to Ne and Nm	3
	(B) Discuss about different types of maintenance & its importance.	4
	(C) Calculate required no of ring frame and speed frame spindle for the production of 2500 kg yarn of 40's combed. Where ring frame spindle speed 19500 rpm, time 8 hrs, waste 3%, t.p.i-25, draft 22, efficiency 90%. For speed frame flyer rpm 1400 efficiency 85% & tpi 1.3	7
Q.2	(A) Write production formula for modern comber in lb/day.	3
	(B) It is required to produce 8000 kg of combed yarn of 50's ne. Calculate total raw cotton required for the same.	4
	(C) Twill woven fabric need to prepare of about 2000 meter length. Where EPI & PPI are 40 & 30. warp and weft count is 30's, warp and weft crimp 6%. Calculate weight of warp and weft required for this lot if reed width is of 48 inch.	7
OR		
	(C) A comber machine running at 425 nips/min, with feed/nip of 7 mm. calculate no of comber required for a 5000 lb/shift. Consider lap hank of 0.0125 and noil % of 10. Efficiency of machine is 80%	7
Q.3	(A) Discuss key routine maintenance points for winding machine	3
	(B) An air jet loom running at 900 rpm for 22 picks variety. Calculate time required to weave 3000 meter of fabric on a loom with 85% efficiency.	4
	(C) Calculate the number of water jet weaving machines to be installed to match with the production capacity of a yarn preparatory unit having 9 texturing machines each having 120 spindles and running at 1100 mts/min with 94 % efficiency. These water jet weaving machines are running at 700 rpm with 95 % efficiency and fabric having reed/pick of 30/20, 62 inches width and using 240 denier of yarn as warp & weft.	7
OR		
Q.3	(A) Enlist daily & weekly maintenance check points for ring frame	3
	(B) A carding machine running at 100 doffer rpm with 90% efficiency. Sliver hank 0.15. Calculate production in kg/day	4
	(C) Prepare spin plan and production schedule for the 1000kg/shift rotor yarn of 16's ne. Consider suitable data for a modern machine combination.	7
Q.4	(A) Calculate total number of ends and picks for a fabric having following details : <ul style="list-style-type: none">• Reed / Pick – 60/362,• Fabric Length – 4000 Meters,• Fabric Width – 56 Inches	3
	(B) Prepare warp and weft production schedules if the weights of warp and weft are 40000 kgs and 30000 kgs respectively. Assume modern sequence of machines.	4

- (C) A textile mill wants to produce fabric of following particulars: **www.FirstRanker.com** **www.FirstRanker.com** **7**
Warp/Weft: 16s/16s Ne, EPI/PPI: 72/44, R.S.: - 157 cm, length wise contraction: 7%.
Find out GSM of fabric. Also work out requirement of warp and weft yarn per 100 m of fabric.(ignore selvedge and waste)

OR

- Q.4** (A) What will be the hank deliver on a lap former if sliver hank is of 0.17. Draft and doubling are 1.3 & 18 respectively. **3**
- (B) Discuss key routine maintenance points for carding **4**
- (C) If the warping machine speed is 550 Mts/Min, using 32s yarn count and efficiency % is 55, calculate the number of machines required to supply beams per month to the sizing unit having 7 sizing machines. Assume set length of 25000 metres and 480 ends/beam on warping machine. Use following details for sizing machines :
- ends/beam – 3200
 - length of warp sheet per beam – 350 mts
 - speed – 60 mts/min
 - efficiency % - 50
- Q.5** (A) What will be the length of yarn in a cotton yarn package weighing 3 kg, count of yarn is 40's **3**
- (B) Calculate no of beams produced on a sizing machine in a shift from the following data. Speed 50 mpm, effi:- 50%, no of ends/beam 2200, length of warp sheet/beam 250 meter. **4**
- (C) State the importance of maintenance in weaving department. Explain the daily, weekly, monthly and quarterly/yearly check points for automatic weaving machines in detail. **7**

OR

- Q.5** (A) Write production formula for a double-width high speed rapier loom. **3**
- (B) A set of 6 beam each containing 30000 meter of warp is to be prepared. If speed is 500 mpm & effi.-80%. Calculate a time required to prepare a set. **4**
- (C) Prepare warp & weft production schedules to produce 80,000 kgs of grey fabric per day having following details : **7**
- reed/pick – 82/48
 - warp/weft – 30s/36s
 - fabric width – 42 inches
 - weave – 3/1 twill
