

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII EXAMINATION – WINTER 2025

Subject Code:3172915

Date:01-12-2025

Subject Name:Production Planning in Textile

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.
4. Simple and non-programmable scientific calculators are allowed.

		MARK
Q.1	(a) Convert 62 Ne To Tex And Nm	3
	(b) Discuss key routine maintenance points for carding	4
	(c) A textile mill wants to produce fabric of following particulars:- Warp/Weft : 16s/16s Ne, EPI/PPI : 70/40, R.S.:- 122 cm, length wise contraction : 7%. Find out GSM of fabric. Also work out requirement of warp and weft yarn per 100 m of fabric	7
Q.2	(a) What will be the length of yarn in a cotton yarn package Net weighing 2.9 kg, count of yarn is 16's	3
	(b) An air jet loom running at 850 rpm for 30 picks variety. Calculate time required to weave 3000 meter of fabric on a loom with 85% efficiency.	4
	(c) Prepare Spin Plan And Production Schedule For The 1000kg/Shift Combed Yarn Of 60'S Ne. Consider Suitable Data For A Modern Machine Combination.	7
	OR	
	(c) It Is Required To Produce 2000 Meter Suiting Fabric Per Day. Fabric Details:- Final Width 54 inch, Warp & Weft Count 60'S. Reed Count 86, PPI 42. Calculate Warp & Weft Required Per Day along with no of looms.	7
Q.3	(a) How to calculate Production of comber machine in Kg/Shift.	3
	(b) It Is Required To Produce 5500 Kg Of Combed Yarn Of 40'S Ne. Calculate Total Raw Cotton Required For The Same.	4
	(c) Calculate required no of ring frame and speed frame spindle for the production of 6200 kg yarn/day of 40's combed yarn. Where ring frame spindle speed 19000 rpm, waste 1.5%, T.P.I- 18, draft 20, efficiency 90%. For speed frame flyer rpm 1450 efficiency 85% & TPI 1.2	7
	OR	
Q.3	(a) Discuss the term capital cost & running cost.	3
	(b) Discuss about different types of maintenance & its importance.	4
	(c) What is the importance of depreciation. Briefly describe straight line method & reducing balance	7
Q.4	(a) Write production formula for a double-width high speed rapier loom.	3
	(b) Enlist daily & weekly maintenance check points for ring frame	4
	(c) Prepare warp & weft production schedules to produce 9000 kgs of grey fabric per day having following details : • reed/pick – 82/24 • warp/weft – 40s/30s • fabric width – 46 inches • weave – 3/1 twill	7

OR

- Q.4** (a) Discuss key routine maintenance points for airjet 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) Calculate number of loom and pirn winding machine required for the 7
Production of 7000 meter of shirting fabric/day. Fabric particulars:- tape
Length 108 yards, finished length 100 yards, reed space 50", warp and
Weft count 50's, ppi 48., loom data:- 250 rpm, effi-90%, weft waste
0.3%., pirn winding data:- speed 500rpm, effi-80% & no of spindle 36.
- Q.5** (a) Discuss key routine maintenance points for warping machine 3
- (b) Calculate production of a loomshed in meter per day, working for a denim fabric with 90 airjet 4
loom
- (c) Calculate the number of water jet weaving machines to be installed to match with the 7
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.

OR

- Q.5** (a) Calculate total number of ends and picks for a fabric having following details : 3
- Reed / Pick – 90/32,
 - Fabric Length – 2800 Meters,
 - Fabric Width – 48 Inches
- (b) Prepare warp and weft production schedules if the weights of warp and weft are 4000 kgs and 3000 kgs respectively. Consider Rapier loom.. 4
- (c) Twill woven fabric need to prepare of about 2200 meter length. Where EPI & PPI are 40 & 28. warp and weft count is 32's, warp and weft crimp 5 & 6%. Calculate weight of warp and weft required for this lot if reed width is of 54 inch. 7
