Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2024

Subject Code:3172915 Date:01-06-2024

Subject Name:Production Planning in Textile

Time:02:30 PM TO 05:00 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.**

			MARKS
Q.1	**(a)**	Calculate Total Number Of Ends And Picks For A Fabric Having Following Details : Reed / Pick – 70/42, Fabric Length – 2500 Meters, Fabric Width – 54 Inches	**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)	A Textile Mill Wants To Produce Fabric Of Following Particulars Warp/Weft : 14s/14s Ne EPI/PPI : 68/40 R.S. : 160 Cm Length Wise Contraction : 7% Find Out GSM Of Fabric. Also Work Out Requirement Of Warp And Weft Yarn Per 1000 M Of Fabric.(Ignore Selvedge And Waste)	**7**
Q.2	**(a)**	Convert 45 Ne To Tex 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 2000 Kg Yarn Of 30's Carded. 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**
		OR	
	(c)	A Comber Machine Running At 450 Nips/Min With Feed/Nip Of 6 Mm.Calculate No Of Comber Required For A 2500 Kg/Shift. Consider Lap Hank Of 0.0125 And Noil % Of 12. Efficiency Of Machine Is 80%	**7**
Q.3	**(a)**	Discuss Key Routine Maintanance Points For Ring Frame	**3**
	(b)	A Carding Machine Running At 100 Doffer Rpm With 90% Efficiency. Sliver Hank 0.14. Calculate Production In Kg/Day	**4**
	(c)	Prepare Spin Plan And Production Schedule For The 1000kg/Shift Combed Yarn Of 30'S Ne. Consider Suitable Data For A Modern Machine Combination.	**7**
		OR	
Q.3	**(a)**	Write Production Formula For Modern Comber In Kg/Shift.	**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)	It Is Required To Produce 2000 Meter Suiting Fabric Per Day. Fabric Details:- Final Width 152cm, Warp & Weft Count 48'S. Reed Count 56, PPI 52.	**7**

Calculate Warp & Weft Required Per Day. No of Looms And Preparatory Required Per Day.

Q.4	**(a)**	The Length Of Warp On Warpers Beam Is 36000yards And Number Of Ends On Beam Is 420. Net Weight Of Yarn On Beam Is 500lbs, Calculate Count Of Yarn In Ne.	**3**
	(b)	A Set Of 6 Beam Each Containing 20000 Meter of Warp Is To Be Prepared. If Speed Is 350 Mpm & Effi.-60%. Calculate A Time Required To Prepare A Set.	**4**
	(c)	Calculate Number Of Loom And Pirn Winding Machine Required For The Production Of 9000 Yards 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 500YPM, Effi-80% & No Of Spindle 36.	**7**

OR

Q.4	**(a)**	Discuss Key Routine Maintenance Points For Carding	**3**
	(b)	Calculate No Of Beams Produced On A Sizing Machine In A Shift From The Following Data. Speed 65 Mpm, Effi:- 55%, No Of Ends/Beam 2200, Length Of Warp Sheet/Beam 250 Meter.	**4**
	(c)	Calculate GSM Of Denim Fabric. Assume Suitable Data.	**7**
Q.5	**(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)	Calculate No Of Rotor Required For The 1000 Kg/Shift Production, If Speed Is 85000 Rpm, T.M. 5.1, Count10's And Effi. - 90%	**4**
	(c)	Prepare Spin Plan And Production Schedule For The 5000kg/Shift OE Yarn Of 8'S Ne. Consider Suitable Data For A Modern Machine Combination.	**7**

OR

Q.5	**(a)**	Discuss Key Routine Maintenance Points For Winding Machine	**3**
	(b)	An Air Jet Loom Running At 850 Rpm For 20 Picks Variety. Calculate Time Required To Weave 2500 Meter Of Fabric On A Loom With 85% Efficiency.	**4**
	(c)	A Twill Woven Fabric Need To Prepare Of About 2500 Meter Length. Where EPI & PPI Are 40 & 26.Warp And Weft Count Is 32'S, Warp And Weft Crimp 6%. Calculate Weight Of Warp And Weft Required For This Lot If Reed Width Is Of 52 Inch.	**7**

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