

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (Old) EXAMINATION – WINTER 2019****Subject Code: 172903****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.

- Q.1** (a) It Is Required To Produce 5000 Kg Of Combed Yarn Of 40'S Ne. Calculate Total Raw Cotton Required For The Same. **7**
- (b) A Twill Woven Fabric Need To Prepare Of About 2600 Meter Length. Where EPI & PPI Are 50 & 36. Warp And Weft Count Is 32'S, Warp And Weft Crimp 8%. Calculate Weight Of Warp And Weft Required For This Lot If Reed Width Is Of 48 Inch. **7**
- Q.2** (a) Calculate Required No Of Ring Frame And Speed frame Spindle For The Production Of 1800 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**
- (b) 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**
- OR**
- (b) Calculate time required for completion of one lap & total number of laps produced per shift from following data. Speed of lap roller 10 rpm, lap roll dia 10.5", length of lap produced 44 yards, cleaning time 0.30 hrs, doffing time 12 sec. **7**
- Q.3** (a) What is break-down maintenance? State different types of maintenance. Explain the daily, weekly, monthly and quarterly/yearly check points for comber machines in detail. **7**
- (b) Prepare spin plan to produce Combed warp yarn of 70s Ne with T.M of 3.7 and 74s Ne weft with T.M 3.5. Hank of lap is 0.0019 **7**
- OR**
- Q.3** (a) A Carding Machine Running At 125 Doffer Rpm With 87% Efficiency. Sliver Hank 0.089. Calculate Production In Kg/Day **7**
- (b) 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**
- Q.4** (a) 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**

Prepare Warp & Weft Production Schedules to produce 78,000 kgs of grey fabric per day having following details :

- (b) 7
- Reed/Pick – 92/52
 - Warp/Weft – 30s/36s
 - Fabric Width – 42 inches
 - Weave – 2/2 twill

OR

A mill wants to produce 30000 m of a particular fabric every day. Calculate number of looms, sizing and warping machines required per shift from following details.

Fabric Particulars : Warp/Weft : 2/80Ne / 50sNe EPI / PPI: 120 / 96 R.S.: 48 inches

- Q.4 (a) 7

Length contraction: 7%

Loom Shed: Air Jet Loom, RPM / Eff.: 900 / 93%

Sizing: Linear production : 9500 yds per shift per machine

Warping: Linear production : 1.4 lakh yds per shift per machine (max. creel 600 ends)

- (b) 7
- The Length Of Warp On Warpers Beam Is 33000yards And Number Of Ends On Beam Is 450. Net Weight Of Yarn On Beam Is 500lbs, Calculate Count Of Yarn In Ne.

Calculate Number Of Loom And Pirn Winding Machine Required For The Production Of 30000 Yards Of Shirting Fabric/Day. Fabric Particulars:- Tape Length 106 Yards, Finished Length 100 Yards, Reed Space 50", Warp And Weft Count 40'S, PPI 40., Loom Data:- 400 Rpm, Effi-90%, Weft Waste 0.25%., Pirn Winding Data:- Speed 1200YPM, Effi-80% & No Of Spindle 24.

- Q.5 (a) 7

- (b) 7
- 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.

OR

- (a) 7
- An Air Jet Loom Running At 800 Rpm For 24 Picks Variety. Calculate Time Required To Weave 2000 Meter Of Fabric On A Loom With 85% Efficiency.

- Q.5
- A Textile Mill Wants To Produce Fabric Of Following Particulars

Warp/Weft : 24s/18s Ne

- (b) 7

EPI/PPI : 68/38

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 Selvage And Waste)
