

17568

11920

3 Hours / 100 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any TEN of the following: **20****
- a) State the object of two for one twister.
 - b) 12^S and 24^S yarn are doubled, find out the count of resultant double yarn.
 - c) State objectives of doubling.
 - d) State objects of winding.
 - e) Define:
 - (i) Traverse length
 - (ii) Traverse ratio
 - f) State function of tensioner on winding machine.
 - g) State drawbacks of knots on winding machine.
 - h) Define back doubling? State its importance.

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- i) State its importance of vacuum is required to be created inside rotor.
- j) State the function of high velocity air stream generated between opening roller and rotor.
- k) State various steps involved in open end spinning process.
- l) State the reason for high production rates are possible in friction spinning.
- m) State operating principle of wrap spinning.
- n) State the compact spinning principle?
- o) State characteristics of air-jet spun yarn.

2. Attempt any FOUR of the following: 16

- a) Elaborate effect of direction and amount of twist on properties of doubled yarn.
- b) List down different types of clearers and elaborate their working with sketches.
- c) Describe various limitations of ring spinning.
- d) Explain principle of open-end spinning.
- e) Explain operating principle and friction spinning.
- f) State properties of dref spun yarn and its areas of applications.

3. Attempt any TWO of the following: 16

- a) Compare drum winding with precision winding machine for atleast eight points.
- b) Explain working of two for one twister (TFO) with the help of a neat diagram. State advantage of two for one twister over conventional doubler.
- c) (i) Elaborate raw material requirement and sliver preparation for open end spinning.
(ii) Compare OE yarn with ring spun yarn.

4. Attempt any TWO of the following:**16**

- a) Explain working of fancy doubler with the help of a neat diagram. List down various fancy yarns you are aware of. Explain the manufacturing technique of any two fancy yarns.
- b) (i) Explain various features of a modern winding machine.
(ii) Calculate production of a winding machine in kg/shift of 8 hrs from following data.
- Diameter of drum = 3"
Rpm of drum = 2400
No. of spindles = 50
Count of yarn = 30^s Ne
Efficiency = 72%
- c) Explain passage of material through open end machine with the help of a neat labelled diagram.

5. Attempt any TWO of the following:**16**

- a) Explain opening unit of rotor spinning machine with the help of a neat diagram.
- b) Explain following aspects of DREF - III spinning with the help of a neat diagram.
- (i) Material feed
(ii) Opening of material
(iii) Fibre transportation and collection
(iv) Twist insertion and yarn formation.
- c) (i) Elaborate construction and working of rotor. Explain effect of following on properties of OE yarn.
- (1) Diameter of rotor
(2) Rotor groove
(3) Speed of rotor
- (ii) Explain in detail production of voile yarn.

6. Attempt any TWO of the following:**16**

- a) Explain self twist spinning the help of a neat diagram. Explain characteristics of yarn produced by this technique.
 - b) Explain following aspects of rotor spinning:
 - (i) Yarn formation in rotor
 - (ii) Twist insertion
 - (iii) False twist effect
 - (iv) Wrapping fibres
 - c)
 - (i) Explain Bobtex process with the help of a neat diagram.
 - (ii) Calculate the production per shift of 8 hrs of an open end spinning (Rotor spinning) machine working with following particulars.
 - (1) Rotor speed - 60000 rev/min
 - (2) Count of yarn spun - 30^s Ne
 - (3) Twist factor - 4.5
 - (4) Efficiency - 96%
 - (5) No. of positions - 50
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