22365

23124

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answer 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.

(8) Use of Steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. Attempt any FIVE of the following: **10**

a) List down the objectives of carding process.

b) Classify fibre hooks at card.

c) State the function of autoleveller at card.

d) State objectives of draw-frame

e) A draw frame is fed with 8 slivers of hank 0.15. Calculate the hank of sliver delivered if the draft employed at drawframe is 8.5

f) List down various lap preparatory sequences.

g) State function of top comb.

Marks

2. Attempt any THREE of the following: **12**

a) Describe with neat sketch Licker-in zone of a carding machine.

b) Give detailed account for specifications of wire clothing used on following parts of a card –

i) Licker-in

ii) Card

iii) Flats

iv) Doffer.

c) Elaborate the concept of drafting on drawframe. Give brief account for roller setting, roller weighting and draft distribution of any drafting system used on draw frame.

d) With the help of a neat sketch, explain the working of autoleveller at drawframe.

3. Attempt any THREE of the following: **12**

a) Describe with sketches the process of fibre to fibre separation from given sample at carding machine.

b) Calculate the production of card in a shift of 8 hours from following data –

i)	Draft between Lap roller and doffer	=	90
ii)	Draft between doffer and calendar roller	=	1.02
iii)	Draft between calender roller and coiler calender roller	=	1.05
iv)	Hank of lap fed	=	0.00146
v)	Waste removed during carding	=	4%
vi)	Dia of doffer	=	27"
vii)	Rpm of doffer	=	12
viii)	Efficiency of carding machine	=	90%

c) Explain the passage of cotton through drawframe machine with the help of a neat diagram.

Marks

d) Describe effect of various lap preparation sequences on –

i) pre-comb draft

ii) Parallisation of fibres

iii) even-ness of lap

iv) disposition of hooks.

e) Describe with a neat sketch $\frac{5}{4}$ drafting system. State its merits.

4. Attempt any THREE of the following: **12**

a) Draw Schematic diagram of a carding machine and label the parts.

b) Describe maintenance procedure for top and bottom rollers of drafting system of draw frame.

c) Describe various features of a modern draw-frame.

d) Elaborate causes and remedies of 'roller slip' and 'drafting wave'.

e) Describe 'Forward feed' and 'Backward feed' at comber.

5. Attempt any TWO of the following: **12**

a) Elaborate various modern developments in carding.

b) Calculate the production of draw frame working with following particulars –

i)	Speed of front roller	=	300 rpm
ii)	Diameter of front roller	=	$1\frac{1}{4}$" (inch)
iii)	Wt. of slivers fed	=	60 grains/yard
iv)	Draft	=	6.2
v)	No. of doublings	=	6
vi)	Efficiency	=	85%
vii)	Deliveries per machine	=	6.

c) Elaborate sequence of operations taking place at comber with the help of index wheel.

Marks

6. Attempt any TWO of the following: **12**

a) Calculate production of Nasmith comber from following data –

i)	Nip/min.	=	140
ii)	Weight of Lap fed	=	576 grain/yd
iii)	Draft	=	54
iv)	Noil extracted	=	12%
v)	Speed of calender roller	=	180 rpm
vi)	Dia of calender roller	=	8"
vii)	Efficiency	=	90%.

b) 24 card slivers each of 50 grain/yard are fed to a sliver lap machine having a draft of 1.5. The lap roller is of 12" diameter and runs at 40 rpm. Find the production in a shift of 8 hours.

c) With the help of a neat sketch, explain the working of Lapformer machine.