17341

15116

3 Hours / 100 Marks Seat No. | | | | | | | | |

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.*

Marks

1. Attempt **any ten** of the following : **20**

a) Define polymerisation and degree of polymerisation.

b) Enlist types of spinning methods.

c) Enlist any two fibers which are manufactured by using melt spinning and dry spinning method.

d) Define one way and two way mass transfer in spinning. Give examples.

e) What is the role of melting devices in melt spinning ? Enlist various melting devices used.

f) Write the role of pre-filters in melt spinning line.

g) Write with structure the raw material used for manufacturing of polyester.

h) Write the values of degree of ploymerisation, moisture content for polyester fibre.

i) Enlist any four modifications in polyester fibre.

j) Differentiate polyamide and Aramide fibres.

k) Enlist the raw materials required for manufacturing of Nylon – 6 and Nylon 6, 6.

l) Write the uses of Nylon – 6 and 66.

m) Write the values of moisture content and tenacity of polyethylene fibre.

n) Write the values of tenacity and elongation at break for Lycra fibre. State the use of lycra.

2. Solve **any four** of the following : **16**

a) State any four important chemical properties of polyester.

b) Write the role of catalyst and delusturing agent in PET manufacturing. State the condition of polymerisation for PET fibre.

c) Describe melt spinning of polyester fibre.

d) Enlist the use of PET micro fibres. How these fibres are manufactured ?

e) Explain manufacturing of flame retardant PET. State the uses of FR polyester.

f) Write important properties of low pilling PET and CDPET.

P.T.O.

Marks

3. Attempt **any four** of the following : **16**

a) Describe the difference between Nylon – 6 and Nylon – 66.

b) Explain continuous polymerisation of Nylon – 6 with neat labelled sketch.

c) State any four important physical properties of Nylon – 66.

d) Describe manufacturing of hydrophilic Nylon.

e) Write chemical properties of Nylon – 6.

f) State properties of low pilling nylon and differentially dyeable nylon.

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

a) Describe manufacturing of bi-component fibres.

b) Write the raw material synthesis for manufacturing Acrylic fibre.

c) Differentiate between Acrylic fibre and Modacrylic fibre.

d) Write any four important physical properties of Acrylic fibre.

e) Describe manufacturing of Acrylic fibre.

f) Write the solvent for Acrylic fibre. Write the uses of Acrylic.

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

a) Write important physical properties of polyethylene fibres.

b) State chemical properties of polypropylene fibres.

c) Write manufacturing of glass fibre.

d) Write the uses of glass fibre and carbon fibre.

e) Write chemical properties of Lycra.

f) Write important physical properties of polypropylene fibre.

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

a) Write essential requirements of melt spinning.

b) Explain theory of solidification of polymer in melt spinning.

c) Write the sequence of polymer flow in melt spinning.

d) Describe the functions of an extruder.

e) Write advantages and limitations of high speed spinning.

f) Write the spinning speed for LOY, MOY, POY, HOY and FOY.