22390

22223

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 answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

(7) Abbreviations used are their usual meanings.

Marks

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

a) State the full name of following polymers PE, PP, PS and HIPS.

b) Represent the structural formula of cellulose.

c) Enlist any four applications of LDPE.

d) Define thermosetting polymers.

e) State the full name of following polymers PPS and PEEK.

f) Enlist any four colorants.

g) State any four equipments for compounding.

Marks

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

a) State any three properties and three applications of HDPE.

b) Explain the principle of manufacturing of poly-vinyl alcohol by hydrolysis process. State its any three applications.

c) Enlist any three properties and three applications of polycarbonate.

d) Represent the reactions involved in manufacturing of urea formaldehyde.

e) Suggest the material used for acrospace components. State its four properties.

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

a) State any three properties and three applications of polymethyl methacrylate.

b) Describe principle of manufacturing of nylon-66 with reactions involved in it.

c) Explain principle of manufacturing of melamine formaldehyde with reactions involved in it.

d) State the functions of
   i) Heat stabilizer
   ii) Light stabilizer
   iii) Flame retardants

e) Explain working of two roll mill with neat labelled diagram.

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

a) State any four properties and four applications of polyethylene terephthalate.

b) State any four properties and four applications of polyphenylene oxide.

c) Explain principle of manufacturing of polyurethane with reactions involved in it.

d) Explain principle of manufacturing of bismelamide with its any four properties.

e) Explain with neat labelled figure the working of high speed mixer.

Marks

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

a) State any four properties and four applications of phenol formaldehyde.

b) State any four properties and four applications of PEEK.

c) Classify the filters and explain its functions in compounding.

d) State the function and example of impact modifiers and blowing agents.

e) Explain with neat figure the working of ribbon blander.

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

a) Explain manufacturing principle of cellulose acetate. State its four properties and four applications.

b) Draw neat labelled manufacturing flow sheet for HDPE along with its four applications and properties.

c) Draw neat labelled manufacturing flow sheet for nylon along with its four applications and properties.