Scheme – I

Sample Question Paper

Program Name : **Plastic Engineering Program Group**
Program Code : **PS**
Semester : **Fifth**
Course Title : **Advanced polymers (Elective II)**
Marks : **70**

22556

Time: 3 Hrs.

Instructions:

1) All questions are compulsory.
2) Illustrate your answers with neat sketches where necessary.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.
5) Preferably, write the answers in sequential order.

Q.1) Attempt any five of the following. **10 Marks**

a) Draw structure of polyvinyl pyrrolidone

b) Define ionic polymer and name any two ionic polymer.

c) Write structure of natural rubber and also state chemical name of natural rubber.

d) Define term bio-degradable polymer.

e) Enlist any four biodegradable polymers.

f) State function of compatibilizer.name any one compatibilizer.

g) Name different type of crystalline morphology in polymer.

Q.2) Attempt any three of the following. **12 Marks**

a) Write properties and application of polyimide.

b) State and explain applications of Polyvinylidene dichloride with respect to its properties

c) Write structure of polyvinyl ether and enlist properties of it.

d) Discuss the properties and application of polyvinyl fluoride.

Q.3) Attempt any three of the following. **12 Marks**

a) State the any two inorganic polymers. Write its properties and any two products manufactured formed it.

b) Define water soluble polymer. Write properties and any two application of water soluble polymer.

c) Write properties and application of liquid crystal polymer.

d) Enlist any two electro active polymers and write its properties and application

Q.4) Attempt any three of the following. 12 Marks

a) Define polymer blend. Write importance and need of polymer blend

b) Elaborate terminology related to polymer blend with example

i) Compatibility ii) miscibility

c) Write properties and application of PP/EPDM blend.

d) Explain with neat and label sketch blend preparation method with example.

e) State and explain properties and application of PVC/NBR blend

Q.5) Attempt any two of the following. 12 Marks

a) Explain factor affecting biodegradability of plastic material and explain in four factor in brief.

b) Write structure of polyhydroxylalkanoate(PHA).state properties of its and also application of it.

c) Define natural polymer. Enlist any four natural polymer. Write properties and application of any one natural polymer.

Q.6) Attempt any two of the following. 12 Marks

a) Name the functional group present in following polymer and also write properties of these polymers on the basis of function group.

i) PVC ii) PET iii) Nylon6.

b) Discuss following terminology with example

i) Hydrogen bond ii) polar and non polar covalent bond.

c) Explain in brief spherulite morphology in polymer crystal.

Scheme – I

Sample Test Paper - I

Program Name : **Plastic Engineering Program Group**

Program Code : **PS**

Semester : **Fifth**

22556

Course Title : **Advanced polymers (Elective II)**

Marks : **20** **Time: 1 Hour.**

Instructions:

1) All questions are compulsory.
2) Illustrate your answers with neat sketches where necessary.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.
5) Preferably, write the answers in sequential order.

Q. 1) Attempt any FOUR of the following. **08 Marks**

a) Write structure of polysulfide and polyether.

b) State four properties of polyvinyl fluoride.

c) Enlist four different applications of Poly (Vinyl Pyrrolidone).

d) State any two high temperature and fire resistant polymers each.

e) Enlist four different applications of water soluble polymers.

Q. 2) Attempt any THREE of the following. **12 Marks**

a) Explain the preparation method of high performance polymers.

b) State four properties and four applications of polyimides.

c) Explain the preparation method of electro conductive polymer.

d) State four properties and four applications of Liquid crystal polymers

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Scheme – I

Sample Test Paper - II

Program Name : Plastic Engineering Program Group

Program Code : PS

Semester : Fifth

22556

Course Title : Advanced polymers (Elective II)

Marks : 20 **Time: 1 Hour.**

Instructions:

1) All questions are compulsory.
2) Illustrate your answers with neat sketches where necessary.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.
5) Preferably, write the answers in sequential order.

Q. 1) Attempt any FOUR of the following. **08 Marks**

a) Define biodegradation.

b) State four properties of PHA.

c) Enlist soya bean oil based two polymers.

d) Define polymer blend.

e) State types of blends.

Q. 2) Attempt any THREE of the following. **12 Marks**

a) Describe the effects of various factors on biodegradation of plastics.

b) Explain the synthesis process of castor oil based polymers.

c) State four properties and four applications of PP/EPDM based blend

d) Explain any one method for blend preparation.
