

**Scheme – I**  
**Sample Question Paper**

**Program Name** : Diploma in Plastic Engineering  
**Program Code** : PS  
**Semester** : Third  
**Course Title** : Plastic Materials  
**Marks** : 70

**22354**

**Time: 3 Hrs.**

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**Instructions:**

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever 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) Define 'monomer' and 'polymer'.
- b) Represent the structure of ABS.
- c) State the full forms of HDPE and LDPE.
- d) Define thermosetting plastic.
- e) State any four properties of PPS.
- f) State any four functions of lubricants.
- g) Draw labeled sketch of ribbon blender.

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

**12 Marks**

- a) Explain principle of manufacturing of polypropylene using Ziegler-Natta catalyst process.
- b) State any four properties and applications of polytetrafluoroethylene.
- c) Describe tumbler mixer with labeled sketch.
- d) State any four properties and applications of PEEK.

**Q.3) Attempt any THREE of the following.**

**12 Marks**

- a) State any four properties and applications of polymethyl methacrylate.
- b) Explain working of two roll mill with labeled sketch.
- c) State any four properties and applications of phenol formaldehyde.

d) State any four properties and applications of polyacrylamides.

**Q.4) Attempt any THREE of the following.**

**12 Marks**

- a) State any four properties and applications of polyacrylonitrile.
- b) State any four properties and applications of nylon-66.
- c) Explain the role of flame retardants in compounding. State any two flame retardants.
- d) State any four properties and applications of melamine formaldehyde.
- e) Explain working of banbury mixer.

**Q.5) Attempt any TWO of the following.**

**12 Marks**

- a) Select the plastic material with justification for manufacturing of 500 liter capacity water tank to resist the hydrostatic pressure of 20 bars.
- b) Select the relevant equipment for PVC compounding with justification.
- c) Select the additive with justification for outdoor application of plastic products.

**Q.6) Attempt any TWO of the following.**

**12 Marks**

- a) Select the plastic material used in refrigerator with justification for resisting the temperature of  $-5^{\circ}\text{C}$  temperature.
- b) Select the plastic material with justification for any one automobile part.
- c) Select the plastic material with justification for manufacturing of space shuttle parts.

**Scheme – I**  
**Sample Test Paper - I**

**Program Name** : Diploma in Plastic Engineering  
**Program Code** : PS  
**Semester** : Third  
**Course Title** : Plastic Materials  
**Marks** : 20

**22354**

**Time: 1 Hour**

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**Instructions:**

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever 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.**

**08 Marks**

- a) State the full forms of PVC and PVA
- b) Enlist any four sources of cellulose.
- c) Represent the structure of cellulose.
- d) List any two properties and applications of Polyacetals.
- e) Represent the structure of PTFE
- f) State any four properties of nylon-6.

**Q.2 Attempt any THREE.**

**12 Marks**

- a) State any four properties and applications of cellulose nitrate.
- b) State any four properties and applications of polyacrylonitrile.
- c) Explain principle of manufacturing of polypropylene using Ziegler-Natta catalyst process.
- d) State any four properties and applications of polytetrafluoroethylene.
- e) Explain principle of manufacturing of Polyphenyleneoxide.
- f) State any four properties and applications of nylon-66.

**Scheme – I**  
**Sample Test Paper - II**

**Program Name** : Diploma in Plastic Engineering  
**Program Code** : PS  
**Semester** : Third  
**Course Title** : Plastic Materials  
**Marks** : 20

**22354**

**Time: 1 Hour**

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**Instructions:**

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever 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.**

**08 Marks**

- a) State any two functions of plasticizers.
- b) State any two functions of colorants.
- c) State any two functions of lubricants.
- d) State any four properties of PPS.
- e) State principle of manufacturing of PEEK.
- f) State full form of PPS and PEEK

**Q.2 Attempt any THREE.**

**12 Marks**

- a) State any four properties and applications of bismilamide.
- b) State any four properties and applications of PEEK.
- c) State any four properties and applications of ethylene vinyl.
- d) Explain the role of blowing agents in compounding. State any two blowing agents.
- e) Explain the role of flame retardants in compounding. State any two flame retardants.
- f) Explain the role of impact modifier in compounding. State any two impact modifier.

