17548

21415

3 Hours/100 Marks

Seat No. | | | | | | | | |

Instructions *: (1)* ***All*** *questions are* ***compulsory****.*
(2) Answer ***each*** *next main question on a* ***new*** *page.*
(3) Figures to the ***right*** *indicate* ***full*** *marks. Abbreviations used convey usual meaning.*

MARKS

1. Answer **any five** : **(5×4=20)**
   a) Define and explain importance of field testing.
   b) Define 'creep'. Explain its significance.
   c) What do you mean by luminous transparency ? How it is measured ?
   d) Define 'dissipation factor'. Explain its significance.
   e) Compare :
   Carbon arc lamp and xenon arc lamp.
   f) Define 'oxygen index'. Explain its importance.
   g) Explain spiral mold test for thermosets.

2. Answer **any two** : **(2×8=16)**
   a) i) Explain difference between density and bulk density. **2**
   ii) What do the abbreviations, given below, stand for :
   1) I.S.
   2) A.S.T.M.
   3) I.S.O. **3**
   iii) Explain functions of B.I.S. **3**
   b) i) Explain any two factors, which influences refractive index (R.I.) of a plastic.
   ii) Describe a method, to determine R.I. of a plastic.
   c) i) Why do environmental stress cracking of plastic occur ? **2**
   ii) Describe a method to access ESCR of a plastic. **6**

3. Answer **any two** : **(2×8=16)**
   a) i) State factors on which, brittleness temperature of a plastic depend. **2**
   ii) Describe a method to determine H.D.T. of a plastic. **6**

P.T.O.

MARKS

b) i) Define 'dielectric strength' of a plastic. Should the value be high or low ? **2**

ii) Describe a method to determine dielectric strength of a plastic. **6**

c) i) Explain importance of M.F.I. of a plastic. **2**

ii) Explain with a sketch, M.F.I. test. **6**

4. Answer **any two** : **(2×8=16)**

a) For tensile strength

i) Draw a labelled diagram of the specimen. **3**

ii) Write stepwise procedure of its determination. **5**

b) i) Define :

1) Diffused reflection

2) Regular reflection

3) Gloss

4) Haze.

ii) Describe the test for measurement of gloss by gloss-o-meter.

c) i) Explain in general, effect of 'fungus' on plastics.

ii) How is fungus resistance of a plastic, determined ?

5. Answer **any two** : **(2×8=16)**

a) i) Explain principle of Rockwell test. **2**

ii) Write stepwise procedure for working of Rockwell test for hardness measurement. **6**

b) i) Describe procedure to determine 'arc resistance' of plastic. **6**

ii) Which are the applications, Where high arc resistance of a plastic is required ? **2**

c) i) Draw a T.G. – behaviour of any one specific plastic. **2**

ii) Write procedure to conduct T.G. test of a plastic. **6**

6. Answer **any four** : **(4×4=16)**

a) Draw a typical 'stress-strain' curve. What does it indicate ?

b) Describe determination of Vicat Softening point of a plastic.

c) Explain difference between : Volume resistivity and surface resistivity.

d) Explain 'accelerated outdoor test' conducted on plastic.

e) Describe 'cup test' for thermoset.

f) Why is 'acetone immersion test' conducted on plastic ? Describe the method.
