Roll No. ..... Total Pages : 03

BT-8/D-18 **38093**

# HIGH PERFORMANCE FIBRES

## TT-426-A

Time : Three Hours] [Maximum Marks : 100

**Note :** Attempt *five* questions in all, selecting at least *one* question from each Section.

### Section A

1. (a) What are the properties and applications of aramids for technical end-uses ? **10**

   (b) Mention the production process of at least one aramid fibre with neat diagrams. **10**

2. (a) How are "fadder polymers" and "rigid rod polymers" produced ? **10**

   (b) Mention the properties and end-uses of PBI, PBZT. **10**

### Section B

3. How are pitch fibres produced ? Mention the significance of carbonization and graphitization process for carbon manufacturing. **20**

4. (a) Describe the gel spinning process with neat diagrams. **10**

(b) What are the applications of carbon fibres ? Give suitable example. **10**

## Section C

5. (a) State the significance of High and ultramolecular weight polyethylene fibre. **4**

(b) How is UHMWPE produced ? **4**

(c) What are the peculiar features of this fibre ? **4**

(d) How is UHMWPE used for technical applications ? Discuss the properties responsible for it. **8**

6. (a) Explain the concept of fibre optics. **5**

(b) Write briefly about the manufacturing processes of glass. **8**

(c) What are the causes of signal losses in optical fibres ? **7**

## Section D

7. (a) What are superabsorbent fibres ? Write about its applications. **5**

(b) Which are the fibres used for medical applications. Also state the reasons and properties required of the fibres. 8

(c) What is the concept of bicomponents fibres ? What are its features, advantages and uses. 7

8. Write about : **2×10=20**

(a) Biaxially oriented films

(b) Barrier films and coatings.