

CS / M.Tech (MTT / MCP) / SEM-2 / MTT-201 / 09
HIGH PERFORMANCE FIBRES & INDUSTRIAL TEXTILES (SEMESTER - 2)



1.
Signature of Invigilator

2.
Signature of the Officer-in-Charge

Reg. No.

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Roll No. of the
Candidate

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CS / M.Tech (MTT / MCP) / SEM-2 / MTT-201 / 09
ENGINEERING & MANAGEMENT EXAMINATIONS, JULY - 2009
HIGH PERFORMANCE FIBRES & INDUSTRIAL TEXTILES (SEMESTER - 2)

Time : 3 Hours]

[Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. You have to answer the questions in the space provided marked 'Answer Sheet'. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification.**
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

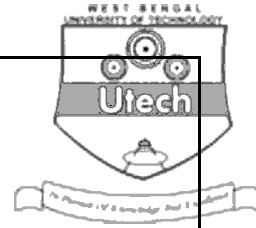
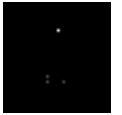
FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

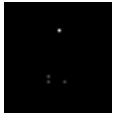
Question Number												Total Marks	Examiner's Signature
Marks Obtained													

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Head-Examiner / Co-Ordinator / Scrutineer

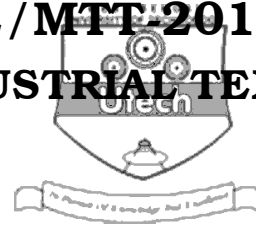
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CS/M.Tech (MTT/MCP)/SEM-2/MTT-201/09
HIGH PERFORMANCE FIBRES & INDUSTRIAL TEXTILES
SEMESTER - 2



Time : 3 Hours]

[Full Marks : 70

The figures in the margin indicate full marks.

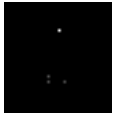
Candidates are required to give their answers in their own words as far as practicable.

Answer any *five* questions taking at least 2 from each group.

5 × 14 = 70

GROUP – A

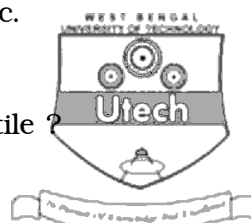
1. What do you mean by high performance fibres ? What according to you are (i) essential and (ii) desirable characteristics to classify a fibre as high performing one ?
Explain with suitable examples. 14
2. Polybenzamidazole (PBI) polymer is known for its excellent thermal and chemical stability and ease in processibility. Describe briefly its production and properties and also mention the features, that make it suitable for its use.
Name some end use applications of these PBI materials. 14
3. Carbon fibre is a well known material for technical applications. Describe briefly its production from various sources, fine structure, properties and end-use applications. 14
4. Name the various types of glass fibre available. What is fibre glass made of ? State its productions, properties and end use applications including reinforced structure. 14

**GROUP – B**

5. a) What are the different favourable properties of the commonly used fibre for their selection for coated textile ? 7
- b) Why is the polypropylene fibre giving tough competition to the traditional jute fibre in making woven sack ? 3
- c) What is the advantage of using flax fibre in making water carrying hose ? 2
- d) Name different end-use applications of coated fabric. 2
6. a) Draw the 3 ply and 5 ply woven structure generally used for conveyor belt. 4
- b) 'Generally the neutral axis is plain weave in construction for a conveyor belt'. Explain. 2
- c) What are tensile properties requirement of a fibre for its selection in conveyor belt ? 4
- d) Discuss about the basic requirements of the conveyor belt. 4
7. a) Discuss in detail about the design criteria of fabric to be used as geo-textile for five basic functions. 5
- b) What is clogging and how does it differ from blinding ? 4
- c) Elaborate the use of geotextile fabric for river bank protection with suitable diagram. 5



8. a) Discuss about the 'design concept' of ventile fabric. 2
- b) What are the basic requirements of protective textile ? 4
- c) State the mechanism of hydrophilic membrane based breathable fabric. 2
- d) What is photoluminescent material ? 2
- e) Discuss in brief about the use of phase change material in smart textile. 4



END