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**BFWE-018**

# B.Sc. FOOTWEAR TECHNOLOGY (BSCFWT)

## Term-End Examination

00253 **December, 2016**

## BFWE-018 : POLYMER TECHNOLOGY – I

*Time : 3 hours* *Maximum Marks : 70*

***Note :*** *Questions no. 1 and 2 are* ***compulsory****. Attempt any* ***five*** *questions from questions no. 3 to 9.*

1. (a) What is a polymer ?

   (b) Explain an elastomer.

   (c) The monomer for natural rubber is _____ .

   (d) What does TPR stand for ?

   (e) Define glass transition temperature.

   (f) Name few polymeric materials for shoe soles.

   (g) Define polymerization.

   (h) What do you understand by 'midsole' ?

   (i) Define 'thermosetting materials'.

   (j) What do you understand by 'compounding' ? *10×1=10*

2. (a) What are the various uses of EVA ?

(b) Discuss the various advantages of PVC as a soling material.

(c) Classify polymers on the basis of structure and thermal behaviour.

(d) Discuss the physical properties of PU as a soling material.

(e) Write the ideal qualities of soling materials. *5×3=15*

3. Explain the versatile behaviour of polyurethane. Mention the applications, advantages and disadvantages of PU in the footwear industry. *9*

4. Differentiate between thermosetting and thermoplastic materials. *9*

5. What are the different classifications of polymers based on synthesis ? Explain the step growth polymerization and its advantages. *9*

6. Discuss the various properties of rubber as a soling material and also discuss the various compounding ingredients to make a rubber compound for shoe sole. *9*

7. Explain EVA elastomer and write its applications, advantages and disadvantages in footwear soling materials. *9*

8. Write down the nomenclature and grading system of natural rubber in detail. How is natural rubber extracted from the rubber tree ? Explain. *9*

9. Write short notes on the following : *3×3=9*

   (a) Blend

   (b) Copolymer

   (c) Blowing Agent