

**M.Sc. FOOTWEAR TECHNOLOGY
(MSCFWT)**

Term-End Examination

December, 2017

**MFW-034 : POLYMER AND DMS SPORTS SHOE
TECHNOLOGY**

Time : 3 hours

Maximum Marks : 70

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) What are the basic ingredients used in EVA compounds ? Discuss the characteristics of EVA compounds. 7
- (b) Describe various properties of TPR material as shoe sole material. 7
2. How is natural rubber extracted and from which plant ? Describe the complete process of extraction, solidification till final manufacturing. Also mention the nomenclature and grading system of natural rubber. 14
3. Describe the manufacturing process of polyurethane. What are the various applications of polyurethane in the footwear industry ? Discuss the advantages of polyurethane. 14

4. Explain the following terms with suitable examples : 14
- (a) Monomer
 - (b) Repeat unit
 - (c) Net work
 - (d) Degree of polymerization
 - (e) Polymer
5. Discuss the importance of addition of different ingredients during the processing of rubber. Write the functions of these ingredients. 14
6. (a) Describe the properties of TPU as a soling material. 7
- (b) Explain the production process of a PVC sole unit with the help of a flow chart. 7
7. (a) What do you understand by vulcanized rubber ? Discuss the various ingredients used in a vulcanized rubber sole. 7
- (b) Define the following terms : 7
- (i) Homopolymer
 - (ii) Vulcanization
 - (iii) Outsole
 - (iv) Fibre
 - (v) Poromerics
 - (vi) Radoma
 - (vii) Midsole
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