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**WT—253—2024**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (Second Year) (Third Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**PHYSICS**

**Paper PHY 304B**

**(Materials Science)**

**(Tuesday, 17-12-2024)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—3 Hours*

*Maximum Marks—75*

*N.B. :— (i) All questions are compulsory.*

*(ii) All questions carry equal marks.*

1. Discuss composition and characteristics of some of the common commercial glasses. 15

*Or*

(a) Describe characteristics of good concretes. 8

(b) Explain the concept of devitrification process. 7

2. What are the general aspects of good timber ? Discuss advantages and disadvantages of timber. 15

*Or*

(a) What is magnetic anisotropy ? How it get affected due to crystal orientation ? 8

(b) Discuss soft and hard magnetic materials. 7

P.T.O.

3. What do you mean by a ferroelectric material ? Discuss the properties of ferroelectric materials in static field. 15

Or

- (a) Explain various types of polarization and the materials in which they originates. 8
- (b) Discuss in detail about pyroelectric materials. 7
4. Explain hydrothermal process for synthesis of crystalline materials. How is the supersaturation obtained ? Mention advantages and disadvantages of this method. 15

Or

- (a) Discuss in detail soft gel technique employed for growing crystalline materials. 7
- (b) Explain low temperature solution growth technique for synthesis of crystalline materials. 8
5. Write short note on (any *three*) : 15
- (a) Types of materials
- (b) Origin of magnetism
- (c) Antiferroelectric materials
- (d) Ion exchange method.