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**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY  
LONERE  
RAIGAD-402 103**

**Semester examination –May 2019**

**Branch: Electrical eng.**

**Sem : III**

**Subject and subject code: Electrical Engineering Material (BTEEE305A)**

**MARKS:60**

**DATE: 01/06/2019**

**TIME:3 HRS**

Instructions to students:

1. Each question carries **12 marks**.
2. Attempt **any five** questions of the following.

Q. 1. Attempt any two of the following

- (a) Define diatomic crystal and explain with an example (NaCl). (06)
- (b) Define point defect, line defect and surface defect. (06)
- (c) Explain structure determination by X-ray diffraction (06)

Q.2. Attempt any two of following

- (a) Explain classification of magnetic materials in brief. (06)
- (b) Define antiferromagnetic and ferromagnetic materials with example. (06)
- (C) Define magnetization and explain hysteresis loss with neat diagram. (06)

Q.3. Attempt all of following questions.

- (a) Explain Quantum free electron theory. (06)
- (b) Explain cyclotron as application of superconductor. (06)



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Q.4. Attempt any two of following

- (a) Explain band structure of semiconductor with neat diagram. (06)
- (b) Explain construction and working of P-N junction diode. (06)
- (c) Explain construction and working of photovoltaic cell (06)

Q.5. Attempt all of following questions

- (a) Define ferroelectric, pyroelectric and piezoelectric material with example. (06)
- (b) Define polarization and explain its types. (06)

Q.6. Attempt any two of following

- (a) Define nanomaterials and explain their properties. (06)
- (b) Write a short note on SEM and TEM. (06)
- (C) Give the application of nanomaterials. (06)

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