

W-3256**M.Sc. (Fourth Semester) Examination, June-2020****PHYSICS****Paper - PT-404-B****Material Science-II***Time : Three Hours**Maximum Marks : 85**Minimum Pass Marks : 29***Note : Attempt All Questions.**

- Q1. Write short notes on the following. 17
a) Stress field and stress energy of dislocation.
b) Work hardening.
- Q2. What is an alloy? Give some examples. Describe in detail electrical conductivity of metals and alloys. What is the basic condition for the formation of an alloy? 17
- Q3. What is de Hass von Alphon effect? How is it used to obtain Fermi-surfaces of solids? 17
- Q4. Describe the following. 17
a) Concept of many electron system.
b) Landau's quasi-particle theory of Fermi liquid.
- Q5. Explain the electron-phonon interaction. What are polarons? What are Cooper pairs? Explain Cooper pair formation in a superconductor. Give the idea of superconductivity. 17

