Govt. Degree College, Akhnoor

6th Sem (pvt.) CBCS Online Question Paper

Sub: Physics **Paper Code: UPYTE-601**

M.Marks: 80 **Duration: 3 Hours**

Q1(a) Derive Laue's equations of diffraction of X rays and obtain Bragg's diffraction condition from them.

Q1(b) Find the Miller indices of a plane that makes intercept 1 on x axis, 2 on y axis and is parallel to z axis

Q2 Explain Laue and Powder methods of X-ray diffraction.

Q3(a) Discuss Einstein model of Specific heat of solids. What are its drawbacks?

Q3(b) Distinguish Between Schottky and Frenkel defects.

Q4 (a) Compare and contrast type I and type II superconductors.

Q4(b) Discuss BCS Theory of Superconductivity.

Q5 Describe in detail Langevin's classical theory of paramagnetism.

Q6 Describe the construction and working of He-Ne gas laser. Give its important applications.

Q7 (a) Explain the terms critical angle, angle of acceptance and numerical aperture.

Q7(b) Calculate the loss of an optical fibre in dB/km whose length is 100m fed with an optical power of 1mW. The output power is 0.3mW.

Q8(a) State principle of Hartley Oscillator. Derive mathematical expression for its frequency.

Q8(b) Discuss the advantages of negative feedback.