

**U.G. 4th Semester Examination - 2020**

**PHYSICS**

[HONOURS]

Course Code : PHY(H)CC-P-10

[PRACTICAL]

Full Marks : 20

Time : Hours

*The figures in the right-hand margin indicate marks.*

1. Answer any **two** questions :  $10 \times 2 = 20$

A) Explain the principle of operation of a LED. Why is Si not used as a LED material? Briefly explain, which type of semiconductor is suitable for manufacturing LED.  $5+2+3$

B) Draw the circuit diagram for transistor in CE configuration. Explain the characteristic curves of this mode. Define Saturation, Cut-off and Active regions.  $2+5+3$

C) Explain the basic principle of solar cell. Compare between photo diode and solar cell. Draw the VI and power curve of solar cell. What do you mean by efficiency of solar cell?  $3+2+3+2$

D) Draw a circuit diagram of a CE transistor amplifier. Find the expression for mid frequency voltage gain and input resistance.  $2+4+4$

E) Give a neat circuit diagram of Wien bridge oscillator and explain how it works. Find the expression for the frequency of oscillation. Show that the voltage gain of the amplifier used in this oscillator must be greater than 3.

$2+2+3+3$

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