# Katwa College
## B.Sc. Semester – IV (Honours) Internal Examination – 2023
## Subject – Physics
## Paper CC X –Analog Systems and Applications

**Time – 1 h**                                                                        **Full Marks: 10**

Answer any two questions:                                                          5x2=10

1. What do mean by barrier potential of a PN junction?
2. Write down the expression of barrier potential of an unbiased PN junction.
3. What do you mean by rectifier?
4.  Draw the circuit of a bridge rectifier and explain how it works.
5. In a full-wave rectifier the forward resistance of each diode is 20 ohm, transformer secondary voltage from the centre tap to each end is 30 V, 50 Hz and the load resistance is 1K ohm. Calculate the d. c. load current.
6. What are output characteristics of transistor?
7. Draw the output and input characteristics of a transistor in CE configuration.
8. What are transistor $\alpha$ and $\beta$? Find the relation of $\alpha$ and $\beta$.
9. What do you mean by load line and Q-point?
10. Derive the relation $I_C = \beta I_B + (1+\beta)I_{CBO}$