

**B.SC. PROGRAM (GENERAL) 3<sup>rd</sup> SEMESTER PRACTICAL EXAMINATION 2020**  
**KANDI RAJ COLLEGE**  
**DEPARTMENT OF PHYSICS**

**SEMESTER: 3<sup>rd</sup>**  
**PAPER CODE: PHY-GCC-P-03**

**STREAM: Program Course (General)**  
**Paper: Analog Systems and Applications**

**Full marks: 20**

**Answer Any Five questions of the following:**

**5×4=20**

1. Explain the I-V characteristics of a PN junction diode both in forward and reverse bias condition.
2. Draw the I-V characteristics of a Zener diode. What do you understand by avalanche and Zener break down?
3. Draw the power load characteristics of a Solar cell showing the maximum power point. How efficiency of a solar cell is calculated, explain briefly.
4. Draw the experimental circuit to study the CE characteristics of a BJT. Draw the output characteristics curve explaining different region.
5. What is Wien Bridge oscillator? Draw the circuit of a Wien Bridge oscillator using op-amp. Derive the expression for frequency of oscillation.
6. Explain the operation of an OP-amp as inverting amplifier. What are the characteristics of an ideal op-amp?
7. Explain the operation of an OP-amp as non-inverting amplifier. How will you study its frequency response?
8. Explain the operation of an Op-amp as Differentiator. Can it be used as a integrator?
9. Explain the operation of a Digital to Analog Converter (DAC) with proper circuit diagram.