

U.G. 3rd Semester Examination - 2021
PHYSICS
[PROGRAMME]
Course code: PHY-G-P(Analog System & Applications)
PRACTICAL

Full Marks:20

Time : 2 Hours

Answer any **two** questions from the following :

1. Write down the difference between p-type and n-type semiconductors? How is a p-n junction diode formed? Draw the I-V characteristics of a p-n junction diode. What is reverse saturation current? Why is a semiconductor diode used as a rectifier?

(2+2+2+2+2)

2. What is Zener breakdown? Draw the I-V characteristics of a Zener diode and specify the breakdown region. Explain how is a Zener diode used as a voltage regulator. Define α and β of a transistor. What is the relation between them?

(2+2+3+3)

3. What is an OP-AMP? Define the symbol of an OP-AMP? What are the various terminals of OP-AMP 741 IC? Mention some applications of OP-AMPs. For a non-inverting amplifier given that input voltage is 6V and $R_1=2K\Omega$ and $R_f=10K\Omega$. Calculate the output voltage. (2+2+2+1+3)