Name. _____	Printed Pages:01
Student Admn. No.: _____	

School of Basic and Applied Sciences
Backlog Examination, June 2023

[Programme: B.Sc (Physics)] [Semester:IV] [Batch:]

Course Title: Physics of Devices and Communication System	Max Marks: 100
Course Code: BBS09T5421	Time: 3 Hrs.

Instructions:	1. *All questions are compulsory.*
	2. *Assume missing data suitably, if any.*

		K Level	COs	Marks
SECTION-A (15 Marks)	**5 Marks each**			
1.	Describe the term MOSFET with circuit diagram.	K1	CO1	5
2.	Explain IC Regulators.	K2	CO2	5
3.	Define the term USB and handshaking	K1	CO3	5
SECTION-B (40 Marks)	**10 Marks each**			
4.	Differentiate between p-n junction and JFET.	K2	CO1	10
5.	Give qualitative idea of C and L Filters.	K3	CO2	10
6.	Description of Tunnel Diode with suitable figure.	K3	CO3	10
7.	Describe the concept of WI-FI towards 5G. OR Describe the concept of LI-FI towards 5G.	K4	CO6	10
SECTION-C (45 Marks)	**15 Marks each**			
8.	Explain Diffusion technique. Differentiate diffusion and Ion planation technique. Also explain, why ion implantation is preferred over diffusion technique	K4	CO3	15
9.	Explain the term Serial and parallel Communications? Also, Give the basic idea of sending data through a COM port.	K5	CO4	15
10	Define amplitude modulation. An AM wave is represented by the expression : $v = 5 (1 + 0.6 \cos 6280\, t) \sin 211 \times 10^4\, t$ volts (i) What are the minimum and maximum amplitudes of the AM wave? (ii) What frequency components are contained in the modulated wave and what is the amplitude of each component? OR A carrier wave of frequency 10 MHz and peak value 10V is amplitude modulated by a 5- kHz sine wave of amplitude 6V. Determine (i) modulation factor (ii) sideband frequencies and (iii) amplitude of sideband components (iv)Draw the frequency spectrum.	K5	CO5	15