Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, December 2020

Course: Digital systems and applications **Semester: III**
Program: BSc (H) Physics **Time 03 hrs.**
Course Code: PHYS 2003 **Max. Marks: 100**

SECTION A

1. Each Question will carry 5 Marks
2. Instruction: Complete the statements/Select the correct option/options.

S. No.	**Question**	**CO**
Q1	Any three main advantages of an integrated circuit are _____, _____ and _____.	**CO1**
Q2	The decimal equivalence of binary number $(01011.1011)_2$ is _____	**CO3**
Q3	The various registers in 8085 are _____ a) Accumulator register and Temporary register b) Instruction register only c) Stack Pointer and Program Counter d) All of the above e) None of them	**CO2**
Q4	In any sequential logic circuit, output at any time depends only on input values of the _____ at that time. a) Past output values b) Intermediate value c) Both past output and present input d) Present input values a) None of the above	**CO3**
Q5	A bus is a group of conducting lines that carry _____ , _____ and_____ .	**CO1**
Q6	A full adder logic circuit normally will have___outputs and ___inputs.	**CO4**

SECTION B

1. Each question will carry 10 marks
2. Instruction: Write short/brief notes (maximum 200 Words).

Q1	What is Race-around problem in JK Flip flop? How can you avoid it?	**CO2**
Q2	Write a short note on a multiplexer.	**CO3**

Q3	What are active and Passive Components? Explain the difference between them using suitable examples.	**CO1**
Q4	How do you construct a D-flip flop from SR flip-flop. Draw the circuit diagram of a D flip-flop using NAND configuration. Also make its truth Table.	**CO2**
Q5	What are counters? Differentiate between synchronous and asynchronous counters. Draw a circuit diagram of Ring counter using D-flip flop. Or Convert the $(154)_{10}$ to Binary system, Octal system and Hex system.	**CO3**
SECTION-C **1. Each Question carries 20 Marks.** **2. Instruction: Write long answer (maximum 500 Words).**		
Q1	What is a microprocessor? List any ten main features of 8085 IC. Or What are different types of memories? Classify memory devices and list their five main characteristics properties.	**CO2**