S.NO: 22N1- UP **Course Code: PUAP1**

A.D.M.COLLEGE FOR WOMEN, NAGAPATTINAM

(AUTONOMOUS)

B. Sc (Computer Science) Degree Examination

III Semester –**November**– 2022

AC I – APPLIED PHYSICS I

Time: 3 hours **Maximum Marks: 75**

Section –A **(10X2=20)**

Answer **ALL** the Questions

1. Convert $(1654)_8$ into binary system.
2. What are universal gates? Why are they called so?
3. What is a multiplexer?
4. Give any two uses of an encoder?
5. What is a Flip-flop?
6. Explain a ring counter.
7. Define RAM.
8. Highlight the principle of a flash drive.
9. List any two drawbacks of binary weighted resistor technique in D/A conversion.
10. What do you mean by ADC and DAC?

Section –B (5X5=25)

Answer **ALL** the Questions

11. a) Convert the following numbers

(i)Convert $(2040)_{10}$ to octal system.

(ii)Convert $(3.75)_8$ to binary system.

(Or)

b) What is the speciality and advantages of NAND and NOR gates with suitable examples?

12. a) Explain 4×1 Multiplexer with a circuit diagram and truth table.

(Or)

b) Describe 4 to 2 Encoder with necessary circuit diagram and truth table.

13. a) Describe a Mod-10 asynchronous counter with proper block diagram.

(Or)

b) Write a brief note on flip flops and their classification with necessary diagram.

14. a) Describe the principle of operation of a RAM? Discuss its various types.

(Or)

b) Explain the working of magnetic storage devices with examples.

15. a) With neat diagram, explain the working principle of R-2R ladder type DAC and list its advantages and disadvantages.

(Or)

b) Explain successive approximation A/D converter with functional diagram for a given analog input.

Section –C **(3 X 10 = 30)**

Answer any **THREE** Questions

16. Briefly explain the four variable karnaugh maps (k-map) using truth tables, Boolean expressions and examples.

17. Highlight the functioning of a half and full adder circuits with its design and truth table.

18. Write a brief note on shift registers and explain its classification with block diagrams.

19. What is ROM? Explain its types with relevant example

20. Discuss the construction and working of 4 – bit R-2R ladder Digital to Analogue converter with a neat block diagram.