PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023
(Second Semester)

Branch - **PHYSICS**

ANALOG, DIGITAL ELECTRONICS AND MICROPROCESSORS

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1. In a pn junction with no external voltage, the electric field between acceptor and donor iron is called a .....
   (i) peak (ii) barrier (iii) threshold (iv) path

2. How many inputs will a decimal to BCD encoder have ?
   (i) 4 (ii) 8 (iii) 10 (iv) 16

3. Which one of the following counters is designed using D flip flop?
   (i) ring counter (ii) ripple counter
   (iii) both a and b (iv) none of the above

4. Astable multivibrator is..... in any stable.
   (i) stable (ii) unstable
   (iii) saturated (iv) both stable & saturated

5. The addressing mode which makes use of in direction pointers is.....
   (i) Indirect (ii) Index (iii) Relative (iv) Offset

SECTION - B (15Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6. (a) Explain the construction of zener diode.
   OR
   (b) Explain the BJT operation.

7. (a) Difference between encoder and decoder.
   OR
   (b) Discuss about the speed power product.

8. (a) Analyze the shift registers.
   OR
   (b) Discuss application of counters.

9. (a) Define CMRR and slew rate.
   OR
   (b) Discuss the positive feedback in oscillators.

Cont...

10. (a) Discuss the different types of addressing mode in 8085.

OR

(b) Differentiate 8085 microprocessor and 8051 microcontroller.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11. (a) Explain the construction and working of MOSFET.

OR

(b) Elucidate the circuit diagram of clippers.

12. (a) Differentiate the multiplexers and demultiplexers.

OR

(b) Explain the binary adder and binary subtractor.

13. (a) Analyze the design and working of SR flip flop using clocked SR flip flop.

OR

(b) Explain the 4-bit binary ripple counters.

14. (a) Enumerate the ciruit diagram and working operation of monostable multivibrator.

OR

(b) Discuss about the Barkhausen criterion for oscillation.

15. (a) Develop the architecture of intel 8085 microprocessor.

OR

(b) Explain the peripheral interfacing of I/O mapped I/O and memory mapped I/O.

Z-Z-Z END