Register Number……

B.E. DEGREE EXAMINATIONS: NOVEMBER 2009

Fifth Semester

AERONAUTICAL ENGINEERING

U07AR505: Aircraft Electronics and Microprocessors

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. It is the maximum reverse voltage that can be applied to the PN junction without damage to the junction, it is called _____

   a) Knee Voltage b) Peak Inverse Voltage c) Breakdown Voltage d) Reverse Voltage

2. Which device is called as a bidirectional semiconductor triode switch?

   a) FET b) BJT c) TRIAC d) SCR

3. Which gate is called as a inequality comparator?

   a) NOR b) OR c) NAND d) EX-OR

4. A decade counter requires _____ flip-fops.

   a) 4 b) 3 c) 5 d) 2

5. In 8085 address bus is _____ bit wide.

   a) 8 b) 16 c) 20 d) 32

6. Which one is the single byte instruction?

   a) MVI A, 32 b) STA [Address] c) LXI [Address] d) MOV A, C

7. Bubble device operates as a set of _____

   a) Shift Register b) Floppy Disc c) Hard Disc d) RAM

8. The storage mechanism consists of cylindrically shaped _____ domains called bubbles

   a) Electric b) Electromechanical c) Magnetic d) Static

9. If the free space is used for communication then the system is called

   a) Line Communication b) Radio Communication

   c) Serial communication d) Parallel Communication

10. An ideal site for a direction finder must be _____

    a) Flat b) Parallel c) Inclined by 60 degree d) Azimuth

PART B (10 x 2 = 20 Marks)

11. An N-channel JFET has I_{DSS} = 8mA and Vp = −5V. Determine the minimum value of V_{DS} for pinch-off region and the drain current I_{DS} for V_{GS} = −2V in the Pinch-off region.
12. Draw the V-I characteristics of TRIAC.
13. Convert from octal to binary $(673.124)_8$.
14. Construct OR gate using NAND Gates.
15. How many addressing modes are present in 8085? List out all the addressing modes.
16. Differentiate Address Bus and Data Bus.
17. What are the advantages of Magnetic bubble memories?
18. Define Random Access Memory.
19. Differentiate navigation by dead reckoning and radio navigation.
20. Define quadrature antenna effect.

PART C (5 x 14 = 70 Marks)

21. (a) (i) In a SCR half wave rectifier, the forward breakdown voltage of SCR is 110V for a gate current of 1mA. If the 50Hz sinusoidal voltage of 220V peak is applied find firing angle, conduction angle, average voltage, average current, power output and the time during which SCR remain OFF. Assume load resistance is 100 ohms and the holding current to be zero. (10)

(ii) Explain the working principle of PN junction diode. (4)

(OR)

(b) (i) Explain the working principle of Enhancement Metal Oxide Semiconductor Field Effect Transistor. (10)

(ii) Write short notes on Zener breakdown. (4)

22. (a) (i) Construct and explain the Mod-8 binary ripple counter. (10)

(ii) Explain the ladder type D/A converter. (4)

(OR)

(b) (i) Construct the BCD to Decimal decoder with its truth table. (10)

(ii) Write short notes on Transistor – Transistor Logic. (4)

23. (a) Explain the architecture of 6800 microprocessor.

(OR)

(b) Explain the architecture of 8086 microprocessor.

24. (a) Explain the following terms in details.

(i) Printers. (ii) Floppy and Hard disc. (8+6)

(OR)

(b) (i) Explain the role of memory chip in a computer. (8)

(ii) Compare synchronous and asynchronous data transfer. (6)

25. (a) Explain about the Radio ranges in navigation systems.

(OR)

(b) Explain the four different methods of navigation.

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