E 3215 (Pages : 2) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2016

Fifth Semester

Core Course—DIGITAL ELECTRONICS

(Common for Model I and Model II B.Sc. Physics and B.Sc. Physics EEM)

(2013 Admission onwards)

Time : Three Hours Maximum : 60 Marks

Part A

Answer **all** *questions briefly.*
Each question carries 1 *mark.*

1. What is BCD code ?
2. What is the use a NAND gate ?
3. Explain truth table.
4. What is a half adder ?
5. State the advantages of a buffer register ?
6. What is an XNOR gate ?
7. What is clocked RS ?
8. State the uses of decade counter.

(8 × 1 = 8)

Part B

Answer any **six** *questions.*
Each question carries 2 *marks.*

9. How will you convert a binary number to decimal number ?
10. Convert 46.25_8 into decimal.
11. Give the truth table of AND gate with three inputs.
12. What is an XOR gate ? Explain.
13. Give the basic laws of Boolean algebra.
14. Explain the structure of Karnaugh map.
15. Briefly explain duality theorem.

Turn over

16. What is a four bit adder ?
17. What is a synchronous binary counter ? Explain.
18. What is DFFJK ?

(6 × 2 = 12)

Part C

Answer **four** *questions.*
Each question carries **4** *marks.*

19. Give an account on ASCII code. State the uses.
20. State and prove de Morgan's theorems.
21. Distinguish between half adder and full adder.
22. Bring out the IC digital logic families.
23. Discuss the working of demultiplexers.
24. Briefly explain the functioning of a A/D converter.

(4 × 4 = 16)

Part D

Answer **two** *questions.*
Each question carries 12 *marks.*

25. Perform the following additions and check the results in decimal.
    (i) 1001.11 + 1011.01 (ii) 101001 + 10010
    (iii) 10111.101 + 10001.11 (iv) 1101.11 + 1011.101
26. Design an AND-to-OR gate combinational network for the Boolean algebra expression $ABCD + AB\bar{C}\bar{D} + \bar{A}\bar{B}CD + \bar{A}B\bar{C}D + ABC\bar{D} + \bar{A}BCD$.
27. Discuss the working of a (i) Decoder and ; (ii) Encoder.
28. Discuss the operations of a BCD ripple counter.

(2 × 12 = 24)