E 1767 (Pages : 2) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2015

Fifth Semester

Core Course—DIGITAL ELECTRONICS

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

[2013 Admissions]

Time : Three Hours Maximum : 60 Marks

Part A

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

1. What is double-daddle method for conversion ?
2. What is ASCII code ?
3. What is the purpose of a NOT gate ?
4. What is a full adder ?
5. State the advantages of Karnaugh map.
6. What is a decoder ?
7. What is a RS flip-flop ?
8. What is a shift register ?

(8 × 1 = 8)

Part B

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

9. How will you convert a decimal number to binary ?
10. Convert 38_{10} to octal.
11. Give the truth table of OR gate with three inputs.
12. What is an exclusive OR gate ? Explain.
13. Give the basic laws of Boolean algebra.
14. State and explain de Morgan's second theorem.
15. Explain SOP method.
16. Show that a NOR gate is functionally equivalent to a bubbled AND gate.
17. Differentiate between encoders and decoders.
18. What is MSJKFF ?

(6 × 2 = 12)

Turn over

Part C

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

19. Give an account on BCD code. State the merits.

20. Discuss on Karnaugh maps with illustrations.

21. Distinguish between NOR and XOR gates.

22. Bring out the working of multiplexers.

23. Give the operation of a half adder.

24. Briefly explain the functioning of a ladder type D/A converter.

$(4 \times 4 = 16)$

Part D

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

25. Perform the following additions and check the result in decimal :—

(i) 26×14 ; (ii) 12×8 ;

(iii) $32 \div 8$; (iv) $120 \div 5$;

(v) 25.75×12.25 ; (vi) $18.75 \div 6.25$.

26. Prepare a table of combinations for the following Boolean algebra expression $X\left(\overline{Y} + \overline{Z}\right) + X\overline{Y}$.

27. Discuss the working of a :

(i) full adder ; and

(ii) encoder.

28. Discuss on binary ripple counter operations.

$(2 \times 12 = 24)$