E 7063 (Pages : 2) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, APRIL 2019

Fifth Semester

Core Course—DIGITAL ELECTRONICS

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

[2013 to 2016 Admissions]

Time : Three Hours Maximum Marks : 60

Part A

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

1. Convert the decimal number 25 to its binary equivalent.
2. How the negative of a binary number is represented ?
3. What is meant by normalized floating- point number ?
4. Give the truth table of AND gate for two inputs.
5. List the values of Boolean variables.
6. What do you understand by universal gate ?
7. What is XOR gate ?
8. What are the merits of RS flip-flop ?

(8 × 1 = 8)

Part B

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

9. What is an octal system ? Explain.
10. Convert the octal numbers 75 and 645 into decimal numbers.
11. What do you understand by ASCII ?
12. Differentiate between NAND and AND gates.
13. Find the 1's complement of 0000 and 1111.
14. State Demorgan's first theorem.
15. Give the fundamental principle of a full adder.

Turn over

16. How an encoder is different from a data selector ?

17. What is a decade counter ? Explain.

18. What is the difference between a decoder and a demultiplexer ?

(6 × 2 = 12)

Part C

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

19. What is hexadecimal system ? What are its advantages over BCD system ?

20. State and explain Demorgan's second theorem.

21. Bring out NAND and NOR gates with truth tables.

22. Represent a half adder using an AND and XOR gate.

23. An AND gate is followed by a NOT gate. Using two inputs A and B find the Boolean expression of the output C.

24. Explain the operation of a ladder type D/A converter.

(4 × 4 = 16)

Part D

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

25. Discuss on the different number systems with merits and demerits.

26. Convert the following decimal numbers to equivalent hexadecimal numbers, (i) 129 (ii) 109 (iii) 74 (iv) 95.

27. Describe the simplification of Boolean functions using Karnaugh maps.

28. Give an account on (i) JK FF (ii) MSJK FF and (iii) T- FF circuits.

(2 × 12 = 24)