E 2941 (Pages : 2) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, APRIL 2022

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.*
Each question carries 1 *mark.*

1. What are the two states to represent quantities in a binary system ?
2. Convert the decimal number 120 to its equivalent Octal number.
3. How AND function is defined in Boolean algebra ?
4. Find 1's complement of 0000.
5. What is a truth table ?
6. What are demultiplexers ?
7. Define the term buffer register.
8. State the principle of a flip-flop.

$(8 \times 1 = 8)$

Part B

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

9. How hexadecimal system is different from Octal system ?
10. What are the rules for binary addition ?
11. What is ASCII code ?
12. Obtain the NOT operation.
13. What are Karnaugh maps ? Explain.
14. List out NAND gate applications.
15. What is a full adder ? Explain.
16. What is meant by clocked RS flip-flop ?

Turn over

17. List the advantages of half adder.
18. State and explain the principle of binary ripple counter.

(6 × 2 = 12)

Part C

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

19. Write a shortly on BCD codes.
20. How an AND gate is different from OR gate ? Explain.
21. State and explain duality theorem.
22. Obtain the operation of NOR gates.
23. Bring out the working of an encoder.
24. Explain the operation of BCD ripple counter.

(4 × 4 = 16)

Part D

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

25. Discuss the different number systems with examples.
26. State and verify Demorgan's theorem. Discuss demorganisation.
27. Discuss NAND and XOR gates with truth tables.
28. Write shortly on : (i) Ladder type D/A converter ; and (ii) Counter type A/D converter.

(2 × 12 = 24)