G 1551 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Fourth Semester

Branch : Applied Electronics and Instrumentation / Electronics and Communication / Electronics and Instrumentation / Instrumentation and Control Engineering

AI 010 404 / EC 010 404 / EI 010 404 / IC 010 404 – DIGITAL ELECTRONICS [AI, EC, EI, IC]

(New Scheme – 2010 Admission onwards)

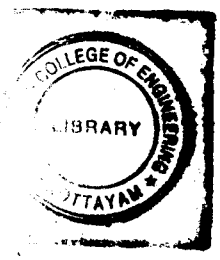
[Regular/Improvement/Supplementary]

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*

Each question carries 3 *marks.*



1. Explain the Duality theorem.
2. Explain NMOS NOR gate.
3. Design a half adder circuit.
4. Mention same applications shift register.
5. Explain different types of ROM.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*

Each question carries 5 *marks.*

6. What is meant by error code?
7. Explain the terms fan-in and fan-out.
8. Design a 1-bit comparator circuit.
9. What is a shift register?
10. Which are different types of PLDs?

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*

Each full question carries 12 *marks.*

11. Minimize the Boolean expression

$$f = \sum m\,(3, 4, 7, 9, 10, 11) + d\,(0, 1, 2, 13, 14, 15)$$

using SOP and POS.

Or

12. (a) Write notes on different number systems.

(b) What is meant by parity?

(6 + 6 = 12 marks)

13. (a) Explain TTL logic circuit.

(b) Draw and explain CMOS inverter circuit.

(6 + 6 = 12 marks)

Or

14. (a) What is meant by emitter coupled logic?

(b) Explain the terms propagation delay, noise margin.

(6 + 6 = 12 marks)

15. Design a 8 : 1 multipluxer using 4 : 1 multipluxer.

Or

16. (a) What is a decoder circuit?

(b) Draw and explain an asynchronous counter.

(6 + 6 = 12 marks)

17. (a) Design a mod-5 counter.

(b) Explain different types of shift registers.

(6 + 6 = 12 marks)

Or

18. (a) What is meant by a universal register?

(b) Explain some applications of flip-flop.

(6 + 6 = 12 marks)

19. Explain the architecture of FPGA.

Or

20. (a) Which are different types of hazards?

(b) What is the difference between PAL and PLA?

(6 + 6 = 12 marks)

[5 × 12 = 60 marks]