ABV-INDIAN INSTITUTE OF INFORMATION TECHNOLOGY & MANAHEMENT GWALIOR

विद्याजीवनामृतं ज्ञानम्

B.Tech CSE/EEE/BMS (Academic Session: 2023-2024)
Hardware Workshop (EEE-104)
Major Exam

Duration: 3 Hour
Max. Marks: 100

Semester - II (B3)
Faculty: Dr. Pinku Ranjan

Date: 28/04/2024
Time: 10 AM -1 PM

Important Instructions:

- **This is a closed book, closed notes examination.**
- **This question paper comprises a total of 43 questions.**
- **All the questions are compulsory and attempt all questions in sequence.**
- **All notations have their usual meanings.**

Part-A (Short Answer) -(30x1=30 marks)

1. What is a resistor?
2. What is a diode?
3. What is a capacitor?
4. What is an integrated circuit (IC)?
5. What is a transistor?
6. What is a voltage regulator?
7. What is a printed circuit board (PCB)?
8. What is a multimeter?
9. What is a relay?
10. What is an oscillator?
11. What is a sensor?
12. What is an op-amp?
13. What is a logic gate?
14. What is a voltage divider?
15. What is a flip-flop?
16. What is an encoder?
17. What is a decoder?
18. What is an inductor?
19. What is a transformer?
20. What is a microcontroller?
21. What is a circuit?
22. What is a circuit breaker?
23. What is an electrical ground?
24. What is the difference between series and parallel circuits?
25. What is an electrical switch?

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26. What is electrical conductivity?
27. What is the function of an electrical relay?
28. What is an electrical Open and short circuit?
29. What is CRO (Cathode Ray Oscilloscope)?
30. What is difference between DC and AC current?

Part- B Long Question (10x3=30 Marks)

31. What is the function of a microcontroller, and how does it differ from a microprocessor?
32. Can you explain the working principle of a bipolar junction transistor (BJT)?
33. What are the different types of memory commonly used in electronic systems, and how do they differ?
34. How does a voltage regulator work, and what are its applications in electronic circuits?
35. What are the key differences between analog and digital signals, and how are they represented in electronic systems?
36. What is the purpose of a printed circuit board (PCB) in electronic systems, and what are its key components?
37. Can you describe the operation of a digital logic gate, and provide examples of common logic gates?
38. What is the function of a resistor in an electronic circuit, and how does it affect the flow of electric current?
39. How does a capacitor work, and what are its applications in electronic circuits?
40. Explain the operation and applications of a transformer in electronic circuits.

Part- C Project related (40 Marks)

1. What are the components used in your project, write about all component in detail with neat diagram. **[15 marks]**
2. Explain the element used in shouldering and desoldering in any circuit. **[5 Marks]**
3. Write about your project in detail including objective, methodology, result and discussion with neat diagram. **[20 Marks]**