15951

BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – Dip.RA-2023
Course Name – Embedded System
Course Code - ECPC501
(Semester V)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) A microcontroller at-least should consist of:
a) RAM, ROM, I/O devices, serial and parallel ports and timers
b) CPU, RAM, I/O devices, serial and parallel ports and timers
c) CPU, RAM, ROM, I/O devices, serial and parallel ports and timers
d) CPU, ROM, I/O devices and timers

(ii) Unlike microprocessors, microcontrollers make use of batteries because they have:
a) high power dissipation
b) low power consumption
c) low voltage consumption
d) low current consumption

(iii) Write, What is the order decided by a processor or the CPU of a controller to execute an instruction-
a) adecode,fetch,execute
b) execute,fetch,decode
c) fetch,execute,decode
d) fetch,decode,execute

(iv) How are the performance and the computer capability affected by increasing its internal bus width?
a) it increases and turns better
b) it decreases
c) remains the same
d) internal bus width doesn't affect the performance in any way

(v) Give the names of the buses present in a controller for transferring data from one place to another.
a) data bus, address bus
b) data bus
c) data bus, address bus, control bus
d) address bus

(vi) Choose 8085 microprocessor has how many pins:
a) 40
b) 42
c) 46
d) 49

(vii) Select CISC is:
a) Computing instruction set complex
b) Complex instruction set computing

c) Complimentary instruction set computing d) Complex instruction set complementary

(viii) Establish which type of memory is suitable for low volume production of embedded systems:

a) ROM b) Volatile
c) Non-volatile d) RAM

(ix) Choose which are the two modes of 80286:

a) Real mode and protected mode b) Mode1 and mode2
c) Alternate and main d) Mode A and mode

(x) Select which register set of 80286 form the same register set of 8086 processor:

a) AH,AL b) BX
c) BX,AX d) EL

(xi) Identify the size of the address bus in 80286:

a) 20 b) 24
c) 16 d) 32

(xii) Identify which of the following processors uses Harvard architecture:

a) TEXAS TMS320 b) 80386
c) 80286 d) 8086

(xiii) Define process compatibility in embedded system design.

a) The ability to integrate hardware with software b) The ability to use the same manufacturing process across different ICs
c) The ability to reduce power consumption in embedded systems d) The ability to interface with external systems

(xiv) Establish the main benefit of using a proprietary manufacturing process for an embedded system.

a) Improved security b) Lower cost
c) Higher performance d) Increased design flexibility

(xv) Calculate the effect of increased operating temperature on the power consumption of an embedded system.

a) Increases power consumption b) Decreases power consumption
c) Has no effect d) Can't be calculated

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Demonstrate the role of microcontroller in embedded system. (3)
3. Apply signal processing in embedded systems to achieve specific goals. (3)
4. Assess the design tradeoffs in embedded systems due to process compatibility. (3)
5. Summarize the types of user interfaces used in embedded systems. (3)
6. Analyze the importance of power consumption in embedded systems and propose techniques to minimize it. (3)

OR

Categorize the different types of embedded memories and infer their functions in an embedded system. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Distinguish EPROM and EEPROM (5)
8. Describe the salient feature of 8051. (5)
9. Write the various types of memory in embedded systems. (5)
10. Explain the various type of A/D converter. (5)
11. Determine the salient feature of coprocessor 286. (5)

12. Write the system on chip (SOC) with an example. (5)

OR

Write short note on interfacing between analog and digital block in embedded system. (5)

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