19U5104 (Pages:2) Name: ……..……..

Reg. No…….

FIFTH SEMESTER B.Voc. DEGREE EXAMINATION, NOVEMBER 2021

(Regular/Supplementary/Improvement)

CC18U GEC5 ES14 – EMBEDDED SYSTEM

(Information Technology – Common Course)

(2018 Admission onwards)

Time: Three Hours Maximum: 80 Marks

PART A

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

1. ---------- design allows the reuse of the software and the hardware components.
2. ---------- can reduce the loop overhead and thus increase the speed.
3. ---------- function can interpret data in the C language.
4. Embedded systems are ----------

   a) General purpose b) Special purpose c) Both A and B
5. RTOS stands for ----------
6. A ---------- converts digital data fed by the processor to analog data.
7. ---------- is the main purpose of the memory management unit.
8. Cross compiler converts ----------
9. A device driver is software for ----------
10. An actor is a ---------- involved in the data transfer.

(10 × 1 = 10 Marks)

PART B

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

11. What are the common characteristics of embedded systems?
12. What are the benefits of single purpose processors?
13. What is integrated circuit (IC)?
14. What is program counter?
15. What is Harvard architecture?
16. What is an operating system?
17. What is a watchdog timer and what is it used for?
18. What is the role of ADC?
19. What is direct mapping?
20. What is the difference between thread and process?
21. What is an emulator?
22. What are the dis advantages of simulation?

(8 × 2 = 16 Marks)

PART C

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

23. What is General purpose processor?
24. List and define the three IC technologies. What are the benefits of using each of the three different IC technologies?
25. Differentiate between Harvard and Princeton architectures?
26. Explain assembler, compiler, and debugger.
27. What is memory hierarchy explain with diagram?
28. What is the difference between memory mapped IO and IO mapped IO?
29. What DMA stands for? How does DMA work?
30. What are the difference between single bus and double bus structure?
31. Briefly explain hard core, soft core, firm cores.

(6 × 4 = 24 Marks)

PART D

Answer any ***two*** questions. Each question carries 15 marks.

32. a) What is an embedded system? Explain with an example.

    b) What are the design metrics?

33. Briefly define each of the following

    Mask Programmed ROM, PROM, EPROM, EEPROM, Flash EEPROM, RAM, SRAM, DRAM, PSRAM, NVRAM

34. Define the following terms.

    Finite state machines, Concurrent processes, Real time systems, and real time operating systems.

35. Briefly explain Logic synthesis, FSM synthesis, Register Transfer synthesis, Behavioral synthesis.

(2 × 15 = 30 Marks)

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