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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_

**End Semester Examination – Nov/Dec - 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14EC2029** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **EMBEDDED SYSTEM DESIGN** | **Max. marks :** | **100** |

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| **PART-A(10X1=10 MARKS)** | | | |
| 1. | Write down the design flow of a typical embedded system. | | (1) |
| 2. | What is DTE and DCE? | | (1) |
| 3. | Define Embedded System. | | (1) |
| 4. | Name some of the tools used in design process. | | (1) |
| 5. | Delineate step angle. | | (1) |
| 6. | What is H Bridge and where it is used? | | (1) |
| 7. | Name some serial communication ports used for embedded application. | | (1) |
| 8. | What are task states? | | (1) |
| 9. | Mention the importance of RTC in embedded system. | | (1) |
| 10. | Give an example for real time system. | | (1) |
| **PART B(5 X 3= 15 MARKS)** | | | |
| 11. | List the different phases involved in the embedded system design life cycle | | (3) |
| 12. | Draw the frame structure of serial communication | | (3) |
| 13. | Draw the Target system board using host and target system | | (3) |
| 14. | What is the importance of running state in task | | (3) |
| 15. | Mention the importance of Device programmer. | | (3) |
| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. | a. | Discuss the characteristics of an embedded system. | 5 |
| b. | Analyze the hardware requirement for any embedded application along With the product Specification. | 10 |
| (OR) | | | |
| 17. | a. | Explain about the interfacing techniques for IO ports, buses. | 10 |
| b. | How to interface LEDs in microprocessor and microcontroller? | 5 |
| 18. | Elucidate the operation of DC motor in forward and reverse direction using H Bridge, interfaced with 8051 microcontroller port. | | 15 |
| (OR) | | | |
| 19. | a. | With a neat block diagram, explain how RTC is Interfaced with 8051 microcontroller | 10 |
| b. | List the handshaking signals of RS232 | 5 |
| 20. | Write an embedded c program to operate a SPDT relay connected with 8051 microcontroller. Explain the operation with a neat block diagram. | | 15 |
| (OR) | | | |
| 21. | Explain the Host system and software development tools used in developing, testing and debugging the embedded software in development process. | | 15 |
| 22. | a. | Explain SI along with the control Signals. | 7 |
| b. | Discuss the Issues in Hardware / Software design and Co-design. | 8 |
| (OR) | | | |
| 23. | a. | What is the need for IDE in an Embedded Architecture? Discuss. | 7 |
| b. | Explain SCI along with the control Signals. | 8 |
| 24. | Explain the techniques for kernel debugging support in detail. | | 15 |
| (OR) | | | |
| 25. | Explain in detail about the memory management system of multitasking RTOS. | | 15 |

ALL THE BEST