SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI
Hanuman Vyayam Prasarak Mandals's
College of Engineering & Technology, Amravati
Course: Information Technology
BE Four Year Semester (Information Technology) Summer 2020 Exam
Subject: 7IT04 Real Time & Embedded Systems
Assignment for ONLY BACKLOG STUDENTS

Instructions

1) **Solve ANY TWO Questions**
2) **Each Question Carries 10 marks**

QI) Solve the following

1. What are the various forms of memories in the system? Explain the functions assigned in the embed system to the memories. [2M]
2. Enlist important structural units of a processor used for embedded system. Explain how an instruction fetched and executed inside central Processing Unit. [2M]
3. Why are device-drivers important routines in a system? [2M]
4. Explain the Petri Net model using an example. [2M]
5. Explain the Tight Coupling and Loose Coupling between processors in Multiprocessor system. [1M]
6. Explain how RTOS handle the scheduling of multiple tasks in real time. [1M]

Q II) Solve the following

1. Define ROM image and explain each section of ROM image in an exemplary system. [2M]
2. Explain the role of virtual devices in the embedded system. Also explain virtual device drivers and virtual interrupt device drivers. [2M]
3. What are the merits and demerits of the following:
   i) Busy and wait transfer mode for the I/O devices.
   ii) Interrupt driven data transfer. [2M]
4. What are the programming advantages & disadvantages of C++? [2M]
5. Explain the steps of graph partitioning. [1M]
6. State the unique features of Linux Device Drivers and explain in brief. [1M]

QIII) Solve the following

1. Explain the parts of an embedded system processor chip. What are the important considerations when selecting a processor? [2M]
2. Explain the memory maps and its use in the development of the embedded system. [2M]
3. Explain use of each control bit of CAN. [2M]
4. What do you mean by Reentrant Function? When the function will be called as Reentrant Function? [2M]
5. What are the virtual sockets? Give exemplary application of the sockets. [1M]
6. Explain the operating system structure units of RTOS in Short. [1M]

QIV) Solve the following

1. Define following: i) Assembler, ii) Cross Assembler, iii) Simulator & iv) Locator [2M]
2. What do you mean by context switching? Explain the interrupt latency related to context switching. [2M]
3. Define context, interrupt latency and interrupt service deadline. [2M]
4. What are the elements of 'C' program? Explain them. [2M]
5. What is meant by pipe? How does the pipe differ from queue? [1M]
6. When in an RTOS necessary and when is it not necessary in the Embedded System? [1M]