Embedded Systems

Instructions :
   (1) All **questions are** compulsory.
   (2) **Make suitable assumptions** wherever **necessary** and **state the assumptions** made.
   (3) **Answers** to the **same questions** must be **written together**.
   (4) **Numbers** to the **right indicate marks**.
   (5) Draw **neat** labeled **diagrams wherever necessary**.
   (6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt the following (any **THREE**)   **[15]**
   (a) Compare Embedded Systems and general purpose computer systems.
   (b) Give the classifications of Embedded Systems.
   (c) Explain cots.
   (d) Write a note on application specific ICs. (IC technology)/Programmable logic devices.
   (e) Explain the non quality attributes of an embedded system.
   (f) Compare RISC and CISC controllers

2. Attempt the following (any **THREE**)   **[15]**
   (a) Explain application specific embedded system.
   (b) Explain domain specific embedded system.
   (c) What is memory map.
   (d) Short note on memory used in embedded system.
   (e) What is memory testing and its purpose and control and status registers.
   (f) What is watchdog timer and control and status registers.

3. Attempt the following (any **THREE**)   **[15]**
   (a) List down features of 8051 microcontroller and compare 8051 family members.
   (b) Draw block diagram of 8051 microcontroller.
   (c) Explain flag bits and PSW register.
   (d) Write an 8051 C program to toggle bits of P1 ports continuously with a 250 ms.
   (e) A door sensor is connected to the P1.1 pin, and a buzzer is connected to P1.7. Write an 8051 C program to monitor the door sensor, and when it opens, sound the buzzer. You can sound the buzzer by sending a square wave of a few hundred Hz.
   (f) Write an 8051 C program to convert packed BCD 0×29 to ASCII and display the bytes on P1 and P2.

4. Attempt the following (any **THREE**)   **[15]**
   (a) What are the selection criteria for controller
   (b) Why to select 8051 microcontroller.
   (c) Draw 8051 microcontroller with interface of 8 LED.
   (d) What is Debugging the Embedded Software and infinite loop
   (e) What is Build process in embedded system
   (f) What is infinite loop, compiling and linking

5. Attempt the following (any **THREE**)   **[15]**
   (a) What are the selection criteria for RTOS
   (b) What are key characteristics of an RTOS
   (c) What operating system and it's types
   (d) What is Emulator/Simulator/Disassembler/Decomipiler
   (e) Short note on EDLC
   (f) What are the treads in embedded industry.

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S.Y. B.Sc.IT Sem. IV: Paper Discussion Schedule

Date	Day	Timing	Centre
18 April. 2018	Wednesday	5.00 p.m. to 7.00 p.m.	Andheri
19 April. 2018	Thursday	9.00 a.m. to 11.00 a.m.	Dadar
19 April. 2018	Thursday	5.00 p.m. to 7.00 p.m.	Borivali
19 April. 2018	Thursday	9.00 a.m. to 11.00 a.m.	Thane
19 April. 2018	Thursday	4.00 p.m. to 6.00 p.m.	Nerul