**Cycle Test 1**

**Department of Information Technology**

**Subject Code: IT1138 Subject Name: Internet of Things**

**Date of Exam: 02. March. 2017 Year/Semester: III/VI**

**PART B Any 5 5\*4=20**

***Note: Mandatory to detail with SFR’s and manual calculations where ever applicable. Coding standards and comments have weightage.***

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| --- | --- | --- | --- | --- | --- |
| **Question no:** | **Reference to IO** | **Reference to Outcome** | **Marks Allotted** | **Marks obtained** | **Outcome MET yes/no** |
| 1 | 1 | i1 | 4 |  |  |
| **2** | 2 | i1 | 4 |  |  |
| **3** | 2 | i2 | 4 |  |  |
| **4** | 2 | i2 | 4 |  |  |
| **5** | 1 | i1 | 4 |  |  |
| **6** | 1 | i1 | 4 |  |  |
| **7** | 2 | i2 | 4 |  |  |
| **8(a)** | 1 | i1 | 15 |  |  |
| **8(b)** | 1 | i1 | 15 |  |  |
| **9(a)** | 2 | i2 | 15 |  |  |
|  **9(b)** | 2 | i2 | 15 |  |  |

1. Differentiate IoT and Embedded Systems.
2. Write an 8051 C program to toggle all the bits of Port P2 with some delay 10msec. Use any Timer with appropriate mode to generate delay.
3. List the addressing modes of 8051 and Write an 8051 C program to demonstrate any 4 addressing modes.
4. Draw the RAM structure of 8051.
5. List the challenges in designing an IoT system.
6. List the applications of IoT and Embedded Systems
7. Draw and detail the PSW of 8051.

**PART C 2\*15=30**

***Note:***

***It is your responsibility to manage time and content effectively. Never complain of a long paper, as it shows the person’s lack of clarity, practice and managing skills.***

8.a. Draw the architecture and explain in detail the following

(i) Embedded Systems (Hardware and Software)

(ii) Internet of Things and explain in detail.

OR

8.b. Use waterfall model to draft the SRS (System Requirement Specification) for developing smart Irrigation. Justify all the modules ranging from design to implementation regarding Smart Irrigation. Provide code snippet for at least three modules which will make Irrigation and its user smart. Develop a prototype with appropriate Hardware and Software.

9.a. Write a C program that continuously gets a single bit of data from P1.7 and sends it to P1.0 while simultaneously creating a square wave of 200 micro seconds on pin P2.5. Use Timer 0 to create a square wave. Assume XTAL=11.0592MHz.

OR

9.b. Write a C program to send and receive two statements “I will be with gratitude” and “to everyone in my life”. Assume baud rate 4600, with 8 bit data, 1 start and 1 stop.