No. of Printed Pages : 4

Sl. No.

B2.5-R5 : IoT & CLOUD SERVICES

DURATION : 03 Hours **MAXIMUM MARKS : 100**

Roll No. : | | | | | | |

Answer Sheet No. : | | | | | | |

Name of Candidate : _____ **; Signature of Candidate :** _____

INSTRUCTIONS FOR CANDIDATES :

- Carefully read the instructions given on Question Paper, Answer Sheet.
- Question Paper is in English language. Candidate has to answer in English Language only.
- **Question paper contains Seven questions. The Question No. 1 is compulsory. Attempt any FOUR Questions from Question No. 2 to 7.**
- **Parts of the same question should be answered together and in the same sequence.**
- **Questions are** to be answered in the **ANSWER SHEET** only, supplied with the Question Paper.
- **Candidate cannot leave the examination hall/ room without signing on the attendance sheet and handing over his/her Answer Sheet to the Invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.**
- After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question Booklet is complete in all respects.

DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

1. (a) What are the various cloud deployment models ? Briefly explain.
(b) What are the main security issues and concerns for Virtual Machines ? Briefly explain.
(c) What are the various features and characteristics of Cortex M series processors ?
(d) Is it possible to apply virtualization at application level ? Explain.
(e) What are the fundamental components of IoT framework ?
(f) What are the main Challenges in Adoption of Technology in Healthcare ?
(g) What is 6lowPAN? What are the basic characteristics and benefits of using 6lowPAN ? **(7x4)**

2. (a) What are the essential features or characteristics that the cloud users expect from the Cloud Service Providers ?
(b) What do understand by Infrastructure as a Service (IaaS) cloud service delivery model ? What are the benefits of IaaS ? Give an example of IaaS that is available for use today.
(c) How virtualization is supported at Operating system level ? What are the advantages and shortcomings of the same ? Explain. **(6+6+6)**

3. (a) Compare and contrast between FOG AND EDGE computing.
(b) What are the advantages of using smart sensors ? What are the properties that smart or intelligent sensors should have ? **(9+9)**

4. (a) Compare the successful wireless technologies, i.e., ZigBee with GSM/CDMA, Wifi and Bluetooth in terms of their Applications, memory requirements, battery life, network size, bandwidth range, and operation range.
(b) Briefly explain about MQTT.
(c) What is CoAP? Which layer protocol is it ? **(10+4+4)**

5. (a) What open source IoT platforms are available today? Briefly explain about five such popular open source IoT platforms which are used today.
(b) What aspects are required to be considered while handling sensor data for IoT analytics? Briefly explain.
(c) What are the most common IoT security threats ? **(8+6+4)**

6. (a) What is digital twin ? What are the benefits of using digital twin ? What are the challenges of digital twin ?
(b) Which smart sensors can be used for IoT based smart agricultural systems ? Mention three specific cases of smart agricultural systems.
(c) What is Industry 4.0 ? Briefly explain five key characteristics of a smart factory. **(6+6+6)**

7. (a) What is Electronic Health Record system? What are the main benefits of EHR systems ?
(b) What is IoT dashboard? What elements are required to build a successful IoT dashboard ?
(c) What are the main Security and Trust Barriers in Cloud Computing ? Explain. **(8+4+6)**

- o 0 o -

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK