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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech.

SEM: III - THEORY EXAMINATION (2021 - 2022) (ONLINE)

Subject: Introduction to IOT

Time: 02:00 Hours

Max. Marks: 100

General Instructions:

1. All questions are compulsory. It comprises of two Sections A and B.
 - Section A - Question No- 1 has 35 objective type questions carrying 2 marks each.
 - Section B - Question No- 2 has 12 subjective type questions carrying 3 marks each. You have to attempt any 10 out of 12 question.
 - No sheet should be left blank. Any written material after a Blank sheet will not be evaluated/checked.

SECTION A

35 x 2 = 70

1. Attempt ALL parts:-

- | | | |
|-------|---|---|
| 1.1.a | Internet of Things (IoT) can be integrated with which of these separate domains: | 1 |
| | (a) Cloud-based storage and computing
(b) Cyber Physical Systems
(c) .Big-data networks
(d) All of these. | |
| 1.1.b | M2M is a term introduced by | 1 |
| | (a) . IoT service providers
(b) Fog computing service providers
(c) Telecommunication service providers
(d) None of these | |
| 1.1.c | Which of the following is a major concern in IPv4 addressing? | 1 |
| | (a) Reliable data transmission
(b) Only addressing
(c) Provide multicast addressing
(d) All of these | |
| 1.1.d | Anytime communication does not deal with | 1 |
| | (a) on the move
(b) outdoor
(c) daytime
(d) night | |
| 1.1.e | Which is not a characteristic of IoT | 1 |
| | (a) Interconnectivity
(b) Enormous Scale
(c) Addressing Ambiguity
(d) Dynamic Charges | |
| 1.1.f | Data consolidation techniques reduce inefficiencies, like data duplication, costs related to reliance on multiple databases and multiple data management points | 1 |
| | (a) TRUE
(b) FALSE | |

1.1.g	Gather + Enrich + Stream + Manage + Acquire + organize and Analyze = Oracle IoT Architecture (CO1) (a) TRUE (b) FALSE	1
1.2.a	Require an external source of power (excitation voltage) that provides the majority of the output power of the signal (a) Active Sensor (b) Passive Sensor (c) Digital Sensor (d) Analog Sensor	1
1.2.b	The output power is almost entirely provided by the measured signal without an excitation voltage (a) Active Sensor (b) Passive Sensor (c) Digital Sensor (d) Analog Sensor	1
1.2.c	The signal produced by the sensor is continuous and proportional to the measured (a) Active Sensor (b) Passive Sensor (c) Digital Sensor (d) Analog Sensor	1
1.2.d	Sensor Resolution is the smallest change it can detect in the quality that it is measuring (a) TRUE (b) FALSE	1
1.2.e	Active tags require power (a) TRUE (b) FALSE	1
1.2.f	Input Voltage limit of arduino Uno is (a) 5-12 V (b) 6-12 V (c) 8-12 V (d) 6-20 V	1
1.2.g	Potentiometer is which of the following types of sensor (a) Speed Sensor (b) Light Sensor (c) Position Sensor (d) Force Sensor	1
1.3.a	What does p refer to in ATmega328p? (a) Production (b) Power Pico (c) Pico-Power (d) Programmable on chip	1
1.3.b	Arduino shields are also called as (a) Extra peripherals (b) Add on modules (c) Connectivity modules (d) Another Arduinos	1

1.3.c	Can external generic C/C++ libraries be imported to the Arduino IDE and used in the code? (a) Yes, external C/C++ libraries can be used with the Arduino code (b) No, no external libraries can be imported to the Arduino code (c) Yes, but only libraries that are approved by the company can be used (d) Yes, but the libraries must be written in Arduino Code only	1
1.3.d	How many arguments does the analogRead() function have? (a) 1 (b) 2 (c) 3 (d) 4	1
1.3.e	Select the use of ESP8266 WiFi module (a) Monitors motion (b) Evaluates air pressure (c) Network provider (d) Switches circuit	1
1.3.f	When we create a web server using ESP8266, we include two libraries. Select the correct option stating the two libraries. (a) Only 1 server required (b) WiFi, WebServer (c) ESP01, ESPserver (d) ESP8266Wifi, ESP8266Webserver	1
1.3.g	Which port is used to power the raspberry pi device? (a) HDMI port (b) Ethernet port (c) Micro USB power port (d) None	1
1.4.a	Which of the Layer is not available in IoT architecture ? (a) Application Layer (b) network layer (c) perception layer (d) Data link layer	1
1.4.b	How can service provider gets connected with IoT Management (a) Using LoRa (b) Using Wi-Fi (c) Using GATEWAY (d) Using RFID	1
1.4.c	Which is low data rate WPAN standard (a) IEEE 802.15.2 (b) IEEE 802.15.4 (c) IEEE 802.15e (d) IEEE 802.15c	1
1.4.d	enquiry is run by Bluetooth device to (a) form a connection with another device (b) isolate from network (c) participate in network (d) Discover other nearby device	1

1.4.e	Near Field Communication (NFC) is based on principal of (a) Reflection (b) Refraction (c) Magnetic induction (d) Electric Conduction	1
1.4.f	Which of following is the primary goal of participatory sensing? (a) Always get connected with the network (b) Centralised data collection (c) not just collect the data but allow normal people to access the data and share knowledge (d) None of above	1
1.4.g	Which of the following is/are the challenge(s) of human-centric sensing? (a) Energy of devices (b) Participant selection (c) Privacy of users (d) All the above	1
1.5.a	Which of the following is a challenge for using Wireless sensor network in a smart city? (a) Choice of appropriate sensors for individual sensing tasks (b) Device placement and network architecture (c) End-to-end IoT implementation (d) All of these	1
1.5.b	Which of the following statements is false? (a) In Local Operation Networks (LonWorks), the Neuron chip is a SOC with multiple microprocessors, RAM, ROM and 10 interface ports. (b) Zigbee consists of three layers — Physical, Medium Access Control, and Network (c) X-10 is mainly used for control of lighting, appliance networks and security sensors in a Home Area Networks (HAN) (d) All of these are false	1
1.5.c	Which of the following statements is true for a smart meter? (CO5) (a) Provide the Smart Grid interface between consumer and the energy service provider (b) Operate digitally (c) Allow for automated and complex transfers of information between consumer- end and the energy service provider (d) All of these	1
1.5.d	IIoT is mainly focused on (CO5) (a) Convenience of individuals (b) Efficiency, safety and security of operation and individuals (c) Efficiency of the system. (d) Data security.	1
1.5.e	In multi-sensor data fusion, which is true: (a) Combines information from multiple sensor sources. (b) Enhances the ability of decision-making systems to include a multitude of variables prior to arriving at a decision. (c) Inferences drawn from multiple sensor type data is qualitatively superior to single sensor type data. (d) All of the above	1
1.5.f	Blynk used for (a) Compile Scripts	1

- (b) control hardware remotely
(c) Simulate design
(d) None of above
- 1.5.g Which of following is not a cloud server 1
- (a) Microsoft Azure
(b) ThingSpeak
(c) ANOVA
(d) IBM Bluemix

SECTION B

10 X 3 = 30

2. Answer any TEN of the following:-

- 2.1.a Explain Any Thing communication 2
- 2.1.b What are the modifications in OSI model for IoT. 2
- 2.2.a Give examples of physical parameters which sensor sense. 2
- 2.2.b Give examples of any two position sensors. 2
- 2.2.c Outline two benefits of RFID over barcodes. 2
- 2.3.a What do you understand by sketch 2
- 2.3.b How is Raspberry Pi different from Arduino? 2
- 2.3.c Write snippet for pinMode() Function Syntax 2
- 2.4.a Where Zig-bee is used popularly? 2
- 2.4.b How LoRa is better then Wi-Fi for bigger area? 2
- 2.5.a What is Thing speak in IoT? 2
- 2.5.b Enlist Application Focus Areas of Smart cities. 2