Reg. No. : .....

(8 pages)

Code No. : 6186 **Sub. Code : WCAE 22**

M.C.A. (CBCS) DEGREE EXAMINATION, APRIL 2024.

Second Semester

Computer Application

Elective – INTERNET OF THINGS

(For those who joined in July 2023 onwards)

Time : Three hours Maximum : 75 marks

PART A — (15 × 1 = 15 marks)

Answer ALL questions.

Choose the correct answer :

1. The M2M application domain consists of application for

   (a) Services, monitoring, analysis and controlling of devices and networks

   (b) M2Mserver, device identity management, data analytics and data management

   (c) Physical devices, communication interface and gateway

   (d) Connect + collect + assemble + analyse

2. The equation representing the IBM IoT frameworks is:

   (a) Gateway + (Connect + Collect + Assemble + Manage) and Analyse = Internet of Things

   (b) Gather + Consolidate + (Connect + Collect + Assemble + Manage) and Analyse = Internet of Things

   (c) Physical object + Internet + Manage + Store and Analyse = Internet of Things

   (d) Gateway + (Connect + Database + Organise + Analyse) = Internet of Things

3. Select the Actuator in IOT from the following:

   (a) Speaker (b) Relay Switch

   (c) Brakes of a Vehicle (d) All of these

4. _____ is a short range wireless connectivity standard that uses magnetic field induction to enable communication between devices.

   (a) Bluetooth

   (b) Near Field Communication

   (c) Wireless

   (d) Cluster Tree

5. ZigBee is based on which protocol

   (a) IEEE 802.15.4 (b) IEEE 802.15.2

   (c) IEEE 802.15.3 (d) IEEE 802.12.5

6. _____ refers to software for connecting two application layers, one at the sender and the other at the receiver.

   (a) Domain (b) Gateway

   (c) Header (d) Protocol

7. SQL is a language not for.

   (a) Data querying, updating, inserting, appending and deleting the databases

   (b) Data access control, schema creation and modifications

   (c) Access to server

   (d) Querying the file and service

8. A layer in business intelligence and business processes architecture reference model for Internet of automotive components for service centre consists of the following:

   (a) Datagram transport layer security layer

   (b) Data access, SQL, query processing, R-descriptive statistics, predictive analytics layer

   (c) Data integration layer

   (d) Transactions processing layer

9. Big data means

   (a) Cloud data, or data received from number of sources of data

   (b) Data sets with sizes beyond the ability of commonly used software tools to acquire, manage and process data within a tolerable elapsed time

   (c) Both (a) and (b)

   (d) Unstructured data in predefined formats

10. Which of the following parameters not used in Sensors?

    (a) Resistance

    (b) Capacitance

    (c) Reverse diode saturation current

    (d) Current in LED

11. Which of the following is Relation database example?

    (a) MySQL

    (b) PostGreSQL

    (c) Oracle database created using PL/SQL

    (d) All of these

12. Participatory sensing is the sensing by

(a) Individuals, groups of people and communities using mobile phones with multiple sensors and cloud services

(b) Collaborative sensor circuits

(c) Multiple parameters sensing by individuals and groups of sensors, contributing, collecting and analyzing sensory information to form a body of knowledge

(d) Multiple parameters sensing by individuals and groups of sensors

13. _____ is system software which loads or embeds into a microcontroller chip or computing platform to let the system start its functions.

(a) Sandbox server

(b) software stack

(c) RTOS

(d) Bootloader

14. The Arduino IDE includes:

(a) C/C++ library

(b) Java Library and JavaScript

(c) Wiring library and bootloader embedded

(d) Both (a) and (c)

15. Encryption is a _____.

(a) Process of generating new data or

(b) New authentication code using a secret key known only to a receiver

(c) Sender and receivers need not identify each other and know the keys that will be used by them

(d) The encryption uses 32-bit, 64 bit, 128 bit, 192 bit or 256-bit key or MAC address for encrypting

PART B — (5 × 4 = 20 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

16. (a) Elucidate on any three conceptual frame work with frame work equations.

Or

(b) Enumerate and explain any five IOT examples.

17. (a) Interpret the concept of IOT network with web socket.

Or

(b) Appraise the concept of internet based communication.

18. (a) Summarize the concepts of online transactions and processing.

Or

(b) Organize cloud computing paradigm for data collection.

19. (a) Describe WSN Architecture with block representation.

Or

(b) Specify the features of Rasperry Pi and Arduino platforms.

20. (a) Recall the five levels of development for application and services with block representation.

Or

(b) Discover the concepts of internet connected car.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

21. (a) Examine any three architecture layers and domain based views.

Or

(b) Editorialize design Principles for connected devises with IOT/M2M system layers.

22. (a) Illustrate the usage of message communication protocols between connected devices and the web.

Or

(b) Elaborately explain IP addressing in the IOT.

23. (a) Classify the ways of organizing data.

Or

(b) Describe cloud computing service models.

24. (a) Designate RFID Technology with its issues.

Or

(b) Explain the basic concept of Embedded Systems.

25. (a) Establish detailed notes on vulnerabilities and security requirements of IOT systems.

Or

(b) Examine design layers and phases design during development and deployment.

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