

13/5 AN

(8 pages)

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M.C.A. (CBCS) DEGREE EXAMINATION,
APRIL 2025

Second Semester

Computer Applications

Elective IV – INTERNET OF THINGS

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 70 marks

PART A — (15 × 1 = 15 marks)

Answer ALL questions.

Choose the correct answer :

1. Levels 1 and 2 of IBM IOT architecture framework is _____
 - (a) consolidate +connect
 - (b) gather+consolidate
 - (c) gather+connect
 - (d) gather+analyse

2. ETSI stands for _____
 - (a) European Telecommunication standards Internet
 - (b) European Technical standards Institute
 - (c) Extended Telecommunication Standards Institute
 - (d) European Telecommunication standards Institute
3. Which of the following layers uses wired or wireless communication technologies
 - (a) physical
 - (b) data link
 - (c) network
 - (d) both (a) and (b)
4. Which protocol is most common for short range low power communication
 - (a) Bluetooth
 - (b) RFID
 - (c) ZigBee
 - (d) Wi-Fi
5. MQTT stands for _____
 - (a) Mean Queuing Telemetry Transport
 - (b) Message Querying Telemetry Transport
 - (c) Message Querying Telemetry Translation
 - (d) Message Querying Telemetry Transport

6. CoRE environment constraints are
- (a) Data is limited in size around 1000 B
 - (b) Web client and web servers use HTTP
 - (c) Data routes as in ROIL network
 - (d) Devices sleep most of the time
7. Server management functions are
- (a) Monitoring of all critical services with SMS and email notifications
 - (b) The security of systems and the protection
 - (c) Maintaining confidentiality and privacy of data
 - (d) All the mentioned
8. Which of the following applies OLTP?
- (a) Internet of Streetlights
 - (b) Internet of Automatic Chocolate Vending Machines
 - (c) Internet of ATMs
 - (d) Internet of Automotive Components for Service Centre Predictive Analytics

9. Which of the following is Relation database example?
- (a) MySQL,
 - (b) PostGreSQL,
 - (c) Oracle database created using PL/SQL,
 - (d) All of these
10. 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
11. _____ denotes a set consisting of computing and communication hardware, software and operating system (OS)
- (a) Shield (b) Module
 - (c) Platform (d) Jumper

12. IIOT stands for _____
- (a) Industrial Internet of Things
 - (b) Internet Internet of Things
 - (c) Intelligence Internet of Things
 - (d) Internal Internet of Things
13. Encryption is a _____
- (a) Process of generating new data
 - (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
14. OWASp has identified top ten vulnerabilities in Internet of Things applications/services as
- (a) Secure web interface
 - (b) Insufficient authentication or authorization,
 - (c) Lack of transport encryption/integrity verification
 - (d) (a) and (c)

15. Microsoft Threat Analysis Tool 2014 analysis view shows the
- (a) threats which are active and inactive.
 - (b) 'Data Store accessible' is a threat
 - (c) 'spoofing' is a stride category, and (vii) 'denial of service' category threat.
 - (d) (a) and (c)

PART B — (5 × 4 = 20 marks)

Answer ALL questions, by choosing either (a) or (b).

Each answer should not exceed 250 words.

16. (a) Formulate the IOT architectural views.
- Or
- (b) Hypothesize the architecture layer view in IETF model.
17. (a) Appraise constrained application protocol(CoAP) features.
- Or
- (b) Establish detailed notes on internet connectivity with its protocol.

18. (a) List the difference between flat files and relational databases.

Or

(b) Identify the data Analysis architecture for IOT application and business processes.

19. (a) Elucidate the components of an RFID systems.

Or

(b) Explain the embedded computing basics.

20. (a) Discover the concepts of API implementation in web sockets.

Or

(b) Outline security tomography of large networks and layered attacks.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, by choosing either (a) or (b).

Each answer should not exceed 600 words.

21. (a) Discuss the three domains in M2M architecture of ETSI M2M reference model.

Or

(b) Articulate any four wireless communication technologies.

22. (a) Generalize internet connectivity principles.

Or

(b) Outline the usage of communication gateway protocols SOAP and RESTful.

23. (a) Reproduce the concepts of Data acquiring and storage.

Or

(b) Classify the ways of organizing data.

24. (a) Elucidate sensor Technology for sensing the real world.

Or

(b) Conclude any three embedded platforms for proto typing.

25. (a) Describe prototyping methods of the online components for IOT Applications.

Or

(b) Describe security models and security profiles.