

(7 pages)

Reg. No. :

Code No. : 8385

Sub. Code : WCAE 22

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

Second Semester

Computer Application

Elective – IV — 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. M2M stands for _____.

- (a) Mobile-to-Machine
- (b) Mobile-to-Mobile
- (c) Machine-to-Machine
- (d) Machine-to-Mobile

2. A constant connectivity between devices is known as _____.

- (a) Smart connectivity
- (b) Connectivity
- (c) Hyperconnectivity
- (d) Streaming

3. Which operating system is used for IoT devices?

- (a) Linux
- (b) Android
- (c) RIOT
- (d) Symbian

4. The expansion of SOAP is _____.

- (a) Sample Object Alternate Protocol
- (b) Sample Object Access Protocol
- (c) Simple Object Access Paradigm
- (d) Simple Object Access Protocol

5. Which one refers to a software component to receive messages from one end?

- (a) Application Programming Interface (API)
- (b) Graphical User Interface (GUI)
- (c) Gateway
- (d) Protocol

6. _____ is the unit of data stack maximum number of bytes, which can be processed at a layer.
- (a) Protocol Data Unit (PDU)
 (b) IP header
 (c) TCP header
 (d) Maximum Transferable Unit
7. Which one is a software architecture model, which consists of services, messages, operations and processes?
- (a) SOA (b) ATM
 (c) SLA (d) ACVM
8. Which is a type of computing that pushes the frontier of computing applications, data and services away from centralised nodes?
- (a) edge (b) distributed
 (c) dbms (d) fog
9. The _____ means user application accesses not only one server but in fact accesses multiple servers.
- (a) Network Function Virtualisation
 (b) Virtualised desktop
 (c) Virtualisation of server
 (d) Multitenant

10. A _____ can sense a change in physical parameters, such as temperature, pressure, light, metal, smoke and proximity to an object.
- (a) Circuit (b) Sensor
 (c) Light (d) Internet
11. A _____ uses the sensor and has an associated electronic circuit which gives digital output.
- (a) ADC (b) SC
 (c) Digital sensor (d) Amplifier
12. An _____ is a device that takes actions as per the input command, pulse or state.
- (a) Object (b) Actuator
 (c) Amplifier (d) IC
13. IIoT stands for _____.
- (a) Internal IoT (b) Internet IoT
 (c) Instant IoT (d) Industrial IoT
14. The _____ is system software which loads or embeds into a microcontroller chip or computing platform, to let the system start its functions.
- (a) Compiler (b) Bootloader
 (c) Assembler (d) Controller

15. _____ is a service model in which the platform is made available to a developer of application.
- (a) SaaS (b) PaaS
(c) XaaS (d) OaaS

PART B — (5 × 4 = 20 marks)

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

Each answer should not exceed 250 words.

16. (a) Describe the basic definition and vision of IoT.
- Or
- (b) Enumerate the major components of IoT.
17. (a) List features of REST architectural style of designing software components.
- Or
- (b) Explain Internet-connectivity protocols.
18. (a) What are the checks, which validate the data?
- Or
- (b) List the usages in IoT deploying 'everything as a service' model of cloud services.

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19. (a) How do sensors measure sound intensity, strain, flex, pressure, vibrations and motion?
- Or
- (b) Why is an IDE required for prototyping the embedded device platform?

20. (a) What are the five levels in software development for IoT applications and services?

Or

- (b) Write short notes on IIoT.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

21. (a) Why is hyper-connectivity required for controlling, monitoring, collaborating, rendering services, gathering and analysing information and extracting knowledge? Explain the entities required for each.
- Or
- (b) Explain the architectural view of IoT.

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

Or

- (b) How will you establish the internet based communication in IoT environment?

23. (a) Describe data generation from IoT/M2M devices.

Or

- (b) What are deployment models for cloud services for IoT applications?

24. (a) Give a table of applications of analog and digital sensors in automotive IoT.

Or

- (b) How is an embedded-device platform hardware and software selected for M2M applications?

25. (a) What do you mean by IoT gateway services for remote applications management?

Or

- (b) What are the security requirements during message exchanges between devices to applications/services?