STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086
(For candidates admitted from the academic year 2023 – 2024 & thereafter)

B.C.A. DEGREE EXAMINATION – APRIL 2026
FOURTH SEMESTER

COURSE : MAJOR ELECTIVE
PAPER : INTERNET OF THINGS
SUBJECT CODE : 23CS/ME/IT45
TIME : 3 HOURS **MAX. MARKS: 100**

Q. No.	SECTION A **Choose the correct answer (20 x 1 = 20)**	CO	KL
1.	_____ architecture supports IoT and cloud convergence. A) OpenIoT B) OSI C) TCP/IP D) HTTP	CO1	K1
2.	M2M refers to_____. A) Man to Machine B) Machine to Machine C) Mobile to Mobile D) Memory to Memory		
3.	IoT data processing commonly uses_____. A) Batch processing only B) Stream processing C) Manual processing D) Static processing		
4.	Programming frameworks in IoT help to_____. A) Replace sensors B) Increase electricity C) Manage data and applications D) Remove networks		
5.	The IEEE standard of ZigBee is based on_____. A) IEEE 802.11 B) IEEE 802.3 C) IEEE 802.15.4 D) IEEE 802.16		
6.	MQTT is mainly used for_____. A) IoT messaging protocol B) Video streaming C) File compression D) Database storage		
7.	IoT design methodology helps in_____. A) Installing printers B) Formatting text C) Developing IoT systems D) Managing emails		
8.	_____component collects data from the environment in an IoT system. A) Monitor B) Sensor C) Printer D) Router		
9.	Privacy in IoT refers to_____. A) Deleting files B) Increasing speed C) Reducing memory D) Protecting user information		
10.	Reliability in IoT means_____. A) System crashes frequently B) System works consistently C) System stops working D) System deletes data		
	Fill in the blanks	**CO**	**KL**
11.	In IoT systems, sensors collect data and _____ transmit the data to networks.	CO2	K2
12.	IoT data analytics helps in converting raw data into _____ information.		
13.	Incremental modelling updates _____ models as new data arrives.		
14.	Future IoT challenges include scalability, security, and _____ management.		
15.	Bluetooth Low Energy is designed for _____ consumption in IoT devices.		

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16.	WebSocket enables _____ communication between client and server.		
17.	IoT gateways help transmit data from devices to the _____.		
18.	IoT system design requires integration of devices, networks, and _____ services**.**		
19.	Fault prevention techniques help avoid _____ failures**.**		
20.	Secure IoT systems require proper _____ management and monitoring**.**		
Q. No.	**SECTION B (4 x 5 = 20)**	**CO**	**KL**
21.	a) Demonstrate how IoT communication protocols can be used in a smart healthcare monitoring system **(OR)** b) Apply the concept of IoT deployment templates in designing a smart energy monitoring system.	CO3 CO3	K3 K3
22.	a) Apply stream processing techniques to process real-time IoT data. **(OR)** b) Apply RFID technology in a smart retail or inventory management system and explain its working.	CO3 CO3	K3 K3
23.	a) Analyze the IoT system design methodology used for IoT application development. **(OR)** b) Examine the architecture and interfaces of Raspberry Pi in IoT systems**.**	CO4 CO4	K4 K4
24.	a) Examine the characteristics and technologies used in the Internet of Vehicles. **(OR)** b) Analyze the security challenges in IoT networks**.**	CO4 CO4	K4 K4
Q. No.	**SECTION C (5 x 12 = 60)**	**CO**	**KL**
25.	a) Explain the evolution of IoT and describe the basic concept of the IoT ecosystem. **(OR)** b) Write detailed notes on IoT data management and IoT analytics in IoT applications.	CO1 CO1	K1 K1
26.	a) Describe the concept of Continuous Logic Processing Systems used in IoT data processing. **(OR)** b) Explain IoT governance and discuss its role in managing IoT infrastructure and data.	CO2 CO2	K2 K2
27.	a) Illustrate the use of MQTT protocol in IoT communication systems and explain how it supports efficient data transmission. **(OR)** b) Apply ZigBee protocol in designing a smart home automation network and explain how devices communicate.	CO3 CO3	K3 K3

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28.	a) Evaluate the importance of sensors, gateways, and cloud services in the development of IoT systems. **(OR)** b) Critically evaluate the use of Python programming in IoT device development with suitable examples.	CO4 CO4	K4 K4
29.	a) Evaluate the reliability issues in IoT systems and discuss techniques used to improve system reliability. **(OR)** b) Evaluate the effectiveness of different IoT security mechanisms such as authentication, encryption, and access control in IoT environments.	CO5 CO5	K5 K5

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