



RAN-2011000703020002

M. Sc. (ICT) (Sem. - III) Examination November - 2025

Data Communication and Internet of Things (Paper - 302)

Time: 3 Hours]

[Total Marks: 70

સૂચના : / Instructions (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી. Fill up strictly the above details on your answer book	Seat No.: <table border="1" style="width: 100%; height: 30px;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table> Student's Signature						

- Q. 1 Answer the following questions (18)**
- Q. 1 A) Answer the following short questions in detail. (Any four) (04)**
- 1) What are the key advantages of Internet of Things (IoT) systems for human society?
 - 2) What is the basic difference between an IoT device and a normal sensor device?
 - 3) List out at least four most common real-world applications of IoT?
 - 4) What are the primary hardware components that make up an embedded system?
 - 5) What are the device level unique requirement in IoT Use case?
- Q. 1 B) Answer the following questions (Any two) (14)**
- 1) Write short note about sensor selection guidelines for IoT Things.
 - 2) Explain at least two wireless communication technologies and Ethernet based wire communication technology to establish machine to machine (M2M) communication
 - 3) What is the difference between data base and data base management system?
Explain Different Database management systems.
- Q. 2 Answer the following questions (Any Three) (18)**
- 1) Write short note on IoT reference Architecture
 - 2) Draw business model canvas and explain different building blocks which relate business financial and business infrastructure concepts to develop business in IoT.
 - 3) Explain Data Centre management system, server management concept in detail.
 - 4) Explain how identity management and authentication process functioning to provide security in IoT system.
- Q.3 Answer the following questions (16)**
- Q. 3 A) Answer the following short questions in detail. (Any four) (04)**
- 1) What are most suitable databases for IoT?
 - 2) What tools and platforms will be use for IoT device prototyping?
 - 3) What do you mean by message integrity in IoT system?
 - 4) What is data encryption?
 - 5) What do you mean by business intelligence in context of IoT?

Q.3 B) Answer the following short questions in detail. (Any Two) (12)

- 1) What is business model innovation in IoT? Why business model innovations are required for IoT system development?
- 2) Which security issues of IoT are considered by Open web application security project (OWASP) for developers, manufacturers and consumers? Explain any three security issues of IoT with possible solutions.
- 3) Explain embedded software and embedded hardware units of IoT embedded computing device.

Q. 4 Answer the following questions in detail. (Any six) (18)

- 1) What is data acquisition in IOT?
 - 2) Event stream processing and complex event processing helps for IoT data analysis.
 - 3) How IoT systems help to create value in product development?
 - 4) What is analog sensor? Explain difference between analog sensor and digital sensor.
 - 5) What is the role of query processing to access data base? Explain different steps of Query Processing.
 - 6) What is privacy in terms of IoT?
 - 7) Explain business model different stages from input stages to output stages scenario for real time monitoring and maintain scheduling for predictive maintenance of real time IoT system.
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