



Roll No:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

BTECH
(SEM I) THEORY EXAMINATION 2024-25
EMERGING TECHNOLOGY FOR ENGINEERING

TIME: 3 HRS

M.MARKS: 25

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

Q no.	Question	Marks	CO
a.	What are the key features of sensors used in IoT applications?	2	1
b.	Mention two key benefits of using IoT in industrial automation.	2	1
c.	What are the major benefits of using cloud computing for businesses?	2	2
d.	What is Azure Virtual Machines?	2	2
e.	How do cryptocurrencies use Blockchain for secure transactions?	2	3
f.	Mention two real-world applications of Blockchain technology.	2	3
g.	What are the important milestones in the development of 3D printing?	2	4
h.	What are the main engineering disciplines involved in drone technology?	2	4
i.	Differentiate between Augmented Reality (AR) and Virtual Reality (VR) with examples.	2	5
j.	How does a Brain-Computer Interface (BCI) interact with the human brain?	2	5

SECTION B

2. Attempt any three of the following:

a.	Discuss the characteristics of IoT and provide examples of its real-world applications. Explain the benefits and challenges associated with IoT implementation.	10	1
b.	Discuss Microsoft Azure's hybrid cloud approach. How does it support enterprises in integrating on-premises infrastructure with the cloud?	10	2
c.	What are cryptocurrencies? How do they leverage blockchain technology? Explain the working of Bitcoin or Ethereum with reference to mining, transactions, and consensus mechanisms.	10	3
d.	Discuss the future of drone technology. What are the potential advancements, and how might they impact industries such as agriculture, logistics, and surveillance?	10	4
e.	Describe the evolution of mobile communication from 1G to 5G. What are the key objectives behind the development of 5G technology? Discuss the current global scenario of 5G deployment and adoption.	10	5

SECTION C

3. Attempt any one part of the following:

a.	What are the major challenges in implementing IoT solutions for Smart Cities, and how can they be addressed?	10	1
b.	Explain the importance of data privacy, encryption, and authentication in IoT security. How is IoT expected to evolve in the coming years?	10	1

4. Attempt any one part of the following:

a.	What are the main benefits of cloud computing for businesses and individuals? Discuss how cloud computing enhances scalability, flexibility, and cost efficiency.	10	2
----	---	----	---



Roll No:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

BTECH
(SEM I) THEORY EXAMINATION 2024-25
EMERGING TECHNOLOGY FOR ENGINEERING

TIME: 3 HRS

M.MARKS: 25

b.	Discuss the core services offered by Google Cloud Platform. How does GCP differentiate itself from other cloud service providers?	10	2
----	---	----	---

5. Attempt any one part of the following:

a.	What are the major challenges in the adoption of blockchain technology? Discuss scalability, security risks, regulatory issues, and energy consumption. Also, explore future trends in blockchain development.	10	3
b.	What are Smart Contracts? How do they work in a blockchain ecosystem? Discuss their advantages and potential challenges with examples of platforms that support smart contracts.	10	3

6. Attempt any one part of the following:

a.	Explain the fundamental design principles of 3D printing. What are the key design considerations and tools used in the process?	10	4
b.	Discuss the various regulations and procedures involved in becoming a certified drone pilot in India. What are the legal and operational challenges?	10	4

7. Attempt any one part of the following:

a.	Explain the interaction between Brain-Computer Interfaces (BCI) and the human brain. How does BCI technology decode neural signals, and what challenges exist in improving its efficiency and accuracy?	10	5
b.	Discuss the ethical, privacy, and security concerns associated with the use of 5G, AR/VR, and Brain-Computer Interfaces. How can these risks be mitigated to ensure safe and responsible technology adoption?	10	5