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Second Semester B.E./B.Tech. Degree Examination, June/July 2026

Essentials of Information Technology

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Explain the three major categories of machine instructions with suitable examples.	6	L2	CO1
	b.	With a neat diagram, explain the organization of a typical computer memory system.	6	L2	CO1
	c.	With a neat diagram explain mass storage system.	8	L2	CO1
OR					
Q.2	a.	What is the difference between RISC and CISC architectures?	6	L2	CO1
	b.	With a neat diagram, explain the basic organization of a computer system and its major functional units.	6	L2	CO1
	c.	Explain how a computer communicates with input/output devices using I/O ports and buses.	8	L2	CO1
Module – 2					
Q.3	a.	Explain how different components of an operating system work together to manage hardware and software resources efficiently.	6	L2	CO2
	b.	What is the difference between application software and utility software?	8	L2	CO2
	c.	Define deadlock. Explain the necessary conditions for deadlock to occur with examples.	6	L2	CO2
OR					
Q.4	a.	Define an algorithm and explain the characteristics of a good algorithm with suitable examples.	6	L2	CO2
	b.	Define a process. Discuss the roles of the scheduler and dispatcher in process management within an operating system.	8	L2	CO2
	c.	Summarize the distinctions between a process, an algorithm, and a program.	6	L2	CO2

Module – 3

Q.5	a.	What is a protocol? Identify three protocols and explain.	7	L2	CO2
	b.	What practices should be followed to keep passwords safe and secure as part of good cyber hygiene?	6	L2	CO2
	c.	What is the difference between a bus network and a star network?	7	L2	CO2

OR

Q.6	a.	What is cyber security, and what does the CIA triad represent in cyber security practice? Explain.	7	L2	CO5
	b.	With neat diagram explain basic information security model.	6	L2	CO5
	c.	Which two types of cyber security teams focus on understanding the TTP's of actors? Explain.	7	L2	CO5

Module – 4

Q.7	a.	What do you mean by software? Explain the four important stages of engineering software development.	10	L2	CO4
	b.	Explain different relational operations with simple examples.	10	L2	CO4

OR

Q.8	a.	Explain the conceptual layers of a database management system.	10	L2	CO4
	b.	Explain Unified Modeling Language (UML). Discuss its importance in software engineering.	10	L2	CO4

Module – 5

Q.9	a.	What is HTML? Explain elements in HTML.	6	L2	CO3
	b.	Explain Cascading Style Sheets.	6	L2	CO3
	c.	With neat diagram, explain structure of website	8	L2	CO3

OR

Q.10	a.	Explain the scope and applications of computer graphics in modern systems.	6	L2	CO3
	b.	Write a short note on: (i) 2D graphics, (ii) Image processing (iii) 3D graphics	6	L2	CO3
	c.	What is rendering in 3D computer graphics? Explain the basic idea of the rendering pipeline and distinguish between real-time and offline (post-process) rendering with examples.	8	L2	CO3