



# PRESIDENCY UNIVERSITY

BENGALURU

Roll No.																			
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## End - Term Examinations - December 2025

Date: 08-12- 2025

Time: 01:00pm - 04:00pm

<b>School:</b> SOCSE	<b>Program:</b> B.Tech	
<b>Course Code :</b> CBC2500	<b>Course Name:</b> Smart contract and solidity	
<b>Semester:</b> V	<b>Max Marks:</b> 100	<b>Weightage:</b> 50%

CO - Levels	C01	C02	C03	C04	C05
<b>Marks</b>	<b>26</b>	<b>26</b>	<b>24</b>	<b>24</b>	

### Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

### Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	Define versioning in Solidity and explain its importance.	2 Marks	L1	C01
2.	Recall Docker and state one advantage of using it in blockchain deployment.	2 Marks	L1	C01
3.	State the concept of Binary packages in Smart contract	2 Marks	L1	C01
4.	List any two globally available variables in Solidity and their uses.	2 Marks	L1	C02
5.	Name any two breaking changes introduced in Solidity version 0.5.0.	2 Marks	L1	C02
6.	Spell a mapping type in Solidity with an example.	2 Marks	L1	C02
7.	Show the difference between static types and dynamic types in ABI encoding.	2 Marks	L1	C03
8.	Define function selector in the context of ABI encoding.	2 Marks	L1	C03
9.	What is the function of Ganache in the Ethereum development environment?	2 Marks	L1	C04
10.	Find timestamp dependence and give one example of its misuse.	2 Marks	L1	C04

## Part B

**Answer the Questions.**

**Total Marks 80M**

<b>11.</b>	<b>a.</b>	<b>Discuss</b> how CMake is used for managing smart contract build automation.	10 Marks	L2	CO1
<b>Or</b>					
<b>12.</b>	<b>a.</b>	<b>Explain</b> the basic structure and working of a Blockchain with an example	10 Marks	L2	CO1
<b>Or</b>					
<b>13.</b>	<b>a.</b>	<b>Interpret</b> the purpose of inheritance and interfaces in Solidity contracts.	10 Marks	L2	CO1
<b>Or</b>					
<b>14.</b>	<b>a.</b>	<b>Describe</b> the process of building Solidity from source using binary packages	10 Marks	L2	CO1
<b>Or</b>					
<b>15.</b>	<b>a.</b>	<b>Classify</b> various data types used in Solidity ABI encoding and how they are represented	10 Marks	L2	CO2
<b>Or</b>					
<b>16.</b>	<b>a.</b>	<b>Illustrate</b> with an example how function selector and argument encoding work together during contract calls	10 Marks	L2	CO2
<b>Or</b>					
<b>17.</b>	<b>a.</b>	<b>Compare</b> the different types in Solidity with code snippets.	10 Marks	L2	CO2
<b>Or</b>					
<b>18.</b>	<b>a.</b>	<b>Explain</b> the concept of inheritance and polymorphism in Solidity contracts.	10 Marks	L2	CO2
<b>Or</b>					
<b>19.</b>	<b>a.</b>	<b>Demonstrate</b> how ABI encoding is used to call a function with both static and dynamic types in Solidity	20 Marks	L2	CO3
	<b>b.</b>	<b>Extend</b> the standard ABI encoding and non-standard packed encoding modes in terms of structure and use cases.		L2	CO3
<b>Or</b>					
<b>20.</b>	<b>a.</b>	<b>Identify</b> how metadata hash encoding aids in source code verification on blockchain explorers like Etherscan.	20 Marks	L3	CO3
	<b>b.</b>	<b>Summarize</b> the basic design principles behind the Ethereum ABI		L2	CO3

21.	a.	<b>Evaluate</b> the advantages and limitations of zk-SNARKs as a privacy-preserving technology in blockchain systems.	20 Marks	L2	CO4
	b.	<b>Compare</b> and contrast Web3.js and Ethers.js libraries in terms of architecture, usability, and performance.		L2	CO4
<b>Or</b>					
22.	a.	<b>Illustrate</b> how a DApp connects to the blockchain using Web3.js to read and write contract data.	20 Marks	L	CO4
	b.	<b>Infer</b> the purpose of testing and auditing in blockchain application development.		L	CO4