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COMPUTER SCIENCE
HSSC-II
SECTION – A (Marks 13)
Time allowed: 20 Minutes

Candidate Sign. _____

Invigilator Sign. _____

Answer Sheet No. _____

Signature should not cross this line

Version No.				
4	2	0	7	4

ROLL NUMBER						

Deleting/overwriting is not allowed.
Do not use lead pencil.

Fill the relevant bubble against each question according to curriculum:

	Question سوال	A	B	C	D	A	B	C	D
1.	Which of the following is a key aspect of usability?	Confidentiality	Effectiveness	Encryption	Availability	○	○	○	○
2.	Which factor in cybersecurity focuses on protecting personal data and handling it responsibly?	Ethics	Cost	Efficiency	Privacy	○	○	○	○
3.	In a **circular linked list**, the last node points to:	The first node	NULL	The previous node	The middle node	○	○	○	○
4.	Which tree traversal visits the **left subtree first, then the root, and finally the right subtree**?	Level-order	Post-order	In-order	Pre-order	○	○	○	○
5.	Which of the following are key concepts of Object-Oriented Programming (OOP)?	Segmentation of code into functions	Encapsulation, Abstraction, Inheritance	Emphasis on program flow only	Writing code without using objects	○	○	○	○
6.	What does a low p-value indicate?	Strong evidence against H_0	Weak evidence against H_0	Results due to chance	Null hypothesis is always accepted	○	○	○	○
7.	What of the following best describes Machine Learning?	Fixed instructions only	Manual data organizing	Learn from data to decide	Store data in databases	○	○	○	○
8.	Which layer feeds the raw data into the neural network?	Input layer	Hidden layer	Network layer	Output layer	○	○	○	○
9.	Data sharing and privacy often conflict because:	Both require full transparency	Both demand maximum collection	Neither affects stakeholders	Sharing needs openness, privacy needs limits	○	○	○	○
10.	What is the purpose of security protocol?	To store large data	To compress files	To secure communication	To build websites	○	○	○	○
11.	Which digital tool is most suitable for writing detailed research reports?	Tableau	Microsoft Word	Prezi	PowerPoint	○	○	○	○
12.	Which of the following is **NOT** a key component of usability in HCI?	Learnability	Efficiency	Memorability	Confidentiality	○	○	○	○
13.	Which step in the MVP development process focuses on avoiding feature creep and keeping the product lean?	Testing	Scalability	User Onboarding	Simplicity	○	○	○	○

COMPUTER SCIENCE HSSC–II

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Time allowed: 2:40 Hours **Total Marks Sections B and C: 62**

SECTION – B (Marks 42)

Q. 2 Answer the following parts briefly. **14x3=42**

(i)	What is meant by the term "usability" in computing systems?	03	OR	Write down any three operations of Queue.	1x3
(ii)	What is an array? Explain with an example.	2+1	OR	Write down the difference between Symmetric and Asymmetric cryptography.	1.5 + 1.5
(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5	OR	How encryption enhances security but can reduces usability? Give one example.	1.5 + 1.5
(iv)	What is the difference between a null hypothesis (H_0) and an alternative hypothesis (H_1)?	1.5 + 1.5	OR	Write any three primary risks associated with sharing private information online.	1x3
(v)	How does error handling in Human-Computer Interaction (HCI) improve user trust and satisfaction?	03	OR	What are security protocols? Give one example.	2+1
(vi)	Write down the concept of primary key. Give an example.	2+1	OR	Explain briefly overfitting and underfitting in model building using machine learning?	1.5 + 1.5
(vii)	Why is cost an important factor when recommending cybersecurity measures? Provide any three points.	1x3	OR	Briefly discuss the role of P-value in hypothesis testing with examples.	1.5 + 1.5
(viii)	How can accessibility features improve usability for visually impaired users? Give three points.	1x3	OR	What is the concept of correctness in algorithm? Give an example.	2+1
(ix)	How does a doubly linked list differ from a singly linked list? Give example.	1.5 + 1.5	OR	Write down three drawbacks of functional programming.	1x3
(x)	Differentiate between ransomware and spyware.	1.5 + 1.5	OR	Write down the purpose of push, pop and top operations of stack.	1x3
(xi)	What will be the time and space complexity of finding the sum of digits in a list?	03	OR	What is the difference between text and binary files? Any three points	1x3
(xii)	How IoT can be helpful in healthcare? Briefly discuss	03	OR	How a neural network is trained using feedforward propagation?	03
(xiii)	Why are tools like Microsoft Word or Google Docs important for communicating research results?	03	OR	What is meant by data storytelling? Give one example.	2+1
(xiv)	What is cloud computing? Give any one application of cloud computing.	1+2	OR	Briefly discuss one common problem that occurs in Human-Computer Interaction (HCI) with example.	2+1

SECTION – C (Marks 20)

Note: Attempt the following questions. **(5x4=20)**

Q.3	How efficiency and memorability in Human-Computer Interaction (HCI) contribute to creating effective and user-friendly systems? Explain. Provide one example of each as well.	2.5 + 2.5	OR	Explain the following tree traversal methods: In-order and Pre-order. Describe their order of operations with one example for each.	2.5 + 2.5
Q.4	Explain the advantages and limitations of Machine Learning compared to Rule-Based algorithms. Provide at least two points for each.	2.5 + 2.5	OR	What is Deep Learning? Describe any two applications of Deep Learning.	1+2 +2
Q.5	What is Blockchain? Explain the applications of Blockchain in the banking industry and in the education sector.	1+2 +2	OR	How do Two-Factor Authentication (2FA) and Biometric Verification improve cybersecurity?	2.5 + 2.5
Q.6	What is Object-Oriented Programming (OOP)? Also write down two pros and two cons of OOP.	1+2 +2	OR	Discuss the primary purpose of a Minimum Viable Product (MVP). How feature prioritization and scalability contribute to the success of the product? Explain.	2+3