K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

B.Tech.	Nov – Dec. 2024-25		
	Program: **DS- Honors**	Scheme : **I**	
	Examination: **Honors**	Semester: **VII**	
Course Code: **HDSC701**	Course Name: **Data Science for Health and Social Care**		
Date of Exam: 3|12|2024	Duration: 2.5 Hours		Max. Marks: 60

Instructions:
(1) All questions are compulsory.
(2) Draw neat diagrams wherever applicable.
(3) Assume suitable data, if necessary.

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any **two** questions out of three: (05 marks each)	10		
a)	Using SPM-EHR applications, explain the 'Temporal Pattern' mining.		CO5	U
b)	Illustrate the method of finding the characteristic equation of a 3x3 matrix and 2x2 matrix. find the characteristic equation of a matrix A= $\begin{pmatrix} 2 & -3 & 1 \\ 3 & 1 & 3 \\ -5 & 2 & -4 \end{pmatrix}$		CO2	Ap
c)	Explain today's CDSS methods in detail.		CO6	U
Q 2	Solve any **two** questions out of three: (05 marks each)	10		
a)	State & discuss the clinical text processing methods.		CO3	U
b)	Apply your understanding of alternative prediction models to a real-world scenario. Choose a specific disease or condition (e.g., heart failure, diabetes, or cancer) and compare any two different advanced prediction models (e.g. Multiple Instance Learning, RL, etc.) for predicting patient outcomes.		CO5	Ap
c)	Explain in detail about 'Bayesian' & 'Non-Bayesian' approaches for identifying fraudulent claims.		CO6	U
Q.3	Solve any **two** questions out of three. (10 marks each)	20		
a)	State and explain the major barriers to adopting EHRs.		CO1	U

B.Tech.	Nov – Dec. 2024-25 Program: **DS- Honors** Examination: **Honors**	Scheme : **I** Semester: **VII**	
Course Code: **HDSC701** Date of Exam:	Course Name: **Data Science for Health and Social Care** Duration: 2.5 Hours		Max. Marks: 60

b)	Draw and discuss the standard bioinformatics workflow to analyze the genomic data.		CO2	U
c)	How to apply the Computer-Aided Diagnosis/Detection procedure to medical imaging, discuss it with the help of two CAD applications		CO6	U
Q.4	Solve any **two** questions out of three. (10 marks each)	20		
a)	Identify the detailed breakdown structure for the text: "John ate an apple" using the Syntax & Lexical analysis technique. Analyze its tree structure representation.		CO3	An
b)	Explain social media analysis for the detection and tracking of 'Infectious Disease Outbreaks'.		CO4	U
c)	Describe privacy preservation with the use of 'Generalization' and 'Synthetic Data Creation' techniques.		CO5	U

****