

20/12/22

K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai-22

(Autonomous College Affiliated to University of Mumbai)

End Semester Exam

Nov 2022 - Dec 2022

B.Tech Program: Information Technology

Examination: TY Semester: VI

Course Code: IUITC604 and Course Name: Artificial Intelligence and Data Science - I

Duration: 03 Hours

Max. Marks: 60

Instructions:

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

		Max. Marks	CO	BT level
Q 1	Solve any six questions out of eight:	12		
i)	Define AI. Explain AI Approaches.	2	CO1	U
ii)	Explain uninformed Search. List uninformed search techniques.	2	CO2	U
iii)	What is constraint satisfaction. Explain with example.	2	CO2	U
iv)	Explain Knowledge Based System.	2	CO3	U
v)	Give advantages and disadvantages of propositional logic.	2	CO3	U
vi)	Define Data Science with Example.	2	CO4	U
vii)	What are the advantages of EDA?	2	CO5	U
viii)	Define CNN. Give Example.	2	CO6	U
Q.2	Solve any four questions out of six.	16		
i)	Draw and explain Agent and environments. Explain Rational Agent.	4	CO1	U
ii)	Draw and explain Hill Climbing with example.	4	CO2	Apply

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iii)	Explain with example De Morgan Laws, Distributive Law and Associative Laws.	4	CO3	Apply										
iv)	How Supervised learning is different from unsupervised learning. Give example.	4	CO4	Apply										
v)	Write a short note on Frequency Polygon. Give steps how to construct frequency polygons with example.	4	CO5	U										
vi)	Explain the different layers in CNN.	4	CO6	U										
Q.3	Solve any two questions out of three.	16												
i)	Compare Model based agent and Utility based Agent with block Diagram and suitable Example.	8	CO1	Analyze										
ii)	Draw and Explain Life Cycle of Data Science.	8	CO4	Apply										
iii)	The following data represent expenditure by a state government for Year 2020-21. Draw Pie-Diagram	8	CO5	Evaluate										
	<table border="1"> <thead> <tr> <th>Items</th> <th>Rural Development</th> <th>Urban Development</th> <th>Education</th> <th>Others</th> </tr> </thead> <tbody> <tr> <td>Proposed Budget</td> <td>8400</td> <td>3000</td> <td>2000</td> <td>1000</td> </tr> </tbody> </table>	Items	Rural Development	Urban Development	Education	Others	Proposed Budget	8400	3000	2000	1000			
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Proposed Budget	8400	3000	2000	1000										
Q.4	Solve any two questions out of three.	16												
i)	Solve using crypto-arithmetic $WRONG + WRONG = RIGHT$	8	CO2	Analyze										
ii)	Define Tautologies and contradiction with example. Show that $(p \wedge q) \rightarrow (p \vee q)$ is a tautology.	8	CO3	Analyze										
iii)	Can we use CNN to perform Dimensionality Reduction? If Yes, then which layer is responsible for dimensionality reduction particularly in CNN?	8	CO6	Evaluate										