

Date : 27-05-22

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

(Autonomous College Affiliated to University of Mumbai)

End Semester Exam

May 2022 – June 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)	Explain structure of agent. list types.	2	CO1	U
ii)	Give advantages and disadvantages of iterative Deepening.	2	CO2	U
iii)	What is heuristic function?	2	CO2	U
iv)	Explain basic operations of propositions.	2	CO3	U
v)	Explain properties of knowledge representation system.	2	CO3	U
vi)	Explain Supervised Learning.	2	CO4	U
vii)	Discuss Different types of Multivariate Analysis.	2	CO5	U
viii)	Why do we use a Pooling Layer in a CNN?	2	CO6	U
Q.2	Solve any four questions out of six.	16		
i)	Draw and explain Model based utility Reflex Agents.	4	CO1	Apply
ii)	Explain A* Algorithm with an example.	4	CO2	Apply
iii)	Compare Propositional Logic Vs Predicate logic.	4	CO3	Apply
iv)	Illustrate SVM with neat labelled sketch.	4	CO4	Analyze

v)	Differentiate ANOVA vs MANOVA.	4	CO5	Analyze																						
vi)	Explain the significance of the RELU Activation function in Convolution Neural Network.	4	CO6	Apply																						
Q.3	Solve any two questions out of three.	16																								
i)	Differentiate Following – a) Fully observable vs Partially Observable Environment. b) Compare Episodic and sequential Environment.	8	CO1	Analyze																						
ii)	How Supervised learning is different from unsupervised learning. Give Example.	8	CO4	Analyze																						
iii)	Explain Pie-Chart. Give advantages and disadvantages. Give steps how to construct Pie-Chart with example.	8	CO5	Apply																						
Q.4	Solve any two questions out of three.	16																								
i)	Solve using Best first search algorithm. <table border="1" data-bbox="794 936 1046 1267"> <thead> <tr> <th>node</th> <th>H (n)</th> </tr> </thead> <tbody> <tr><td>A</td><td>12</td></tr> <tr><td>B</td><td>4</td></tr> <tr><td>C</td><td>7</td></tr> <tr><td>D</td><td>3</td></tr> <tr><td>E</td><td>8</td></tr> <tr><td>F</td><td>2</td></tr> <tr><td>H</td><td>4</td></tr> <tr><td>I</td><td>9</td></tr> <tr><td>S</td><td>13</td></tr> <tr><td>G</td><td>0</td></tr> </tbody> </table>	node	H (n)	A	12	B	4	C	7	D	3	E	8	F	2	H	4	I	9	S	13	G	0	8	CO2	Apply
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ii)	Verify that $(p \wedge \sim q) \vee (p \wedge \sim q)$ is a tautology. Define Tautologies and contradiction with example.	8	CO3	Analyze																						
iii)	What are the problems associated with the Convolution operation and how can one resolve them?	8	CO6	Evaluate																						