

27<sup>th</sup> May 2022

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

**(Autonomous College Affiliated to University of Mumbai)**

**End Semester Exam**

April – May 2022

(B.Tech) Program: Computer Engineering

Examination: TY Semester: VI

Course Code: **1UCEC604** and Course Name: **Artificial Intelligence**

Duration: 03 Hours

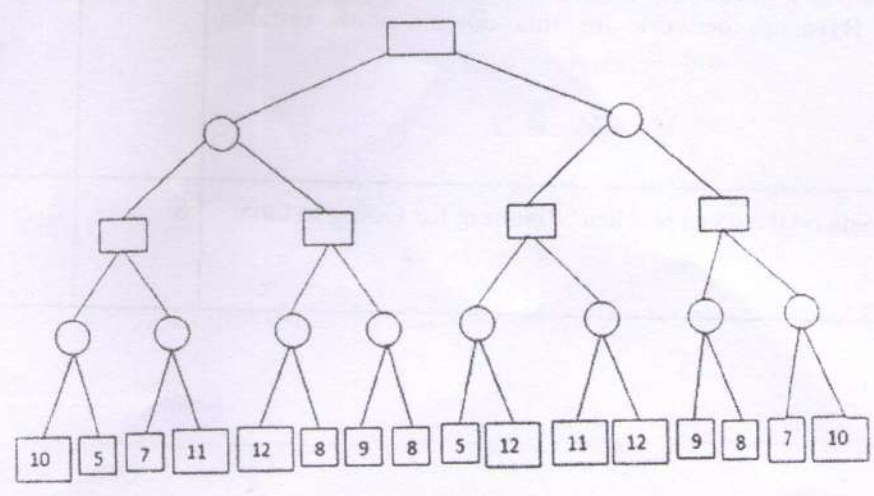
Max. Marks: 60

Instructions:

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

		Max. Marks	CO	BT level
<b>Q 1</b>	<b>Solve any six questions out of eight:</b>	<b>12</b>		
i)	What is Artificial Intelligence?	2	1	R
ii)	What are the PEAS descriptors for 8 puzzle problem?	2	2	Ap
iii)	What are the advantages of heuristic function?	2	3	U
iv)	What is a predicate logic?	2	4	U
v)	What is the performance measure of BFS algorithm?	2	3	U
vi)	What is hybrid expert system?	2	6	U

vii)	What is passive learning?	2	5	U																				
viii)	What is partial order planning?	2	5	U																				
<b>Q.2</b>	<b>Solve any four questions out of six.</b>	<b>16</b>																						
i)	Write a short note on local beam search?	4	3	U																				
ii)	Identify the PEAS descriptor for vacuum cleaner agent?	4	2	Ap																				
iii)	Justify thinking humanly.	4	1	An																				
iv)	From the given table find the probability having "No cavity when toothache is there"	4	4	Ap																				
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th colspan="2"><i>toothache</i></th> <th colspan="2"><math>\neg</math> <i>toothache</i></th> </tr> <tr> <th></th> <th><i>catch</i></th> <th><math>\neg</math> <i>catch</i></th> <th><i>catch</i></th> <th><math>\neg</math> <i>catch</i></th> </tr> </thead> <tbody> <tr> <th><i>cavity</i></th> <td>.108</td> <td>.012</td> <td>.072</td> <td>.008</td> </tr> <tr> <th><math>\neg</math> <i>cavity</i></th> <td>.016</td> <td>.064</td> <td>.144</td> <td>.576</td> </tr> </tbody> </table>		<i>toothache</i>		$\neg$ <i>toothache</i>			<i>catch</i>	$\neg$ <i>catch</i>	<i>catch</i>	$\neg$ <i>catch</i>	<i>cavity</i>	.108	.012	.072	.008	$\neg$ <i>cavity</i>	.016	.064	.144	.576			
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v)	Explain conditional planning with a suitable example.	4	5	U																				
vi)	Explain the role of robotics in industries	4	6	U																				
<b>Q.3</b>	<b>Solve any two questions out of three.</b>	<b>16</b>																						

i)	<p>Explain mini max algorithm. Apply alpha beta pruning algorithm on the given figure below</p> 	8	3	Ap
ii)	<p>Draw and Describe the Architecture of learning agent. What is the role of critic in learning agent</p>	8	2	U
iii)	<p>Consider the following sentences:  1. John likes all kind of food.  2. Apple and vegetable are food  3. Anything anyone eats and not killed is food.  4. Anil eats peanuts and still alive  5. Harry eats everything that Anil eats.  Prove by resolution that:  John likes peanuts</p> <p>1. Apply FOL  2. Apply CNF</p>	8	4	Ap
Q.4	<p>Solve any two questions out of three.</p>	16		
i)	<p>What is an expert system architecture? Explain components of an expert system architecture in details.</p>	8	6	U