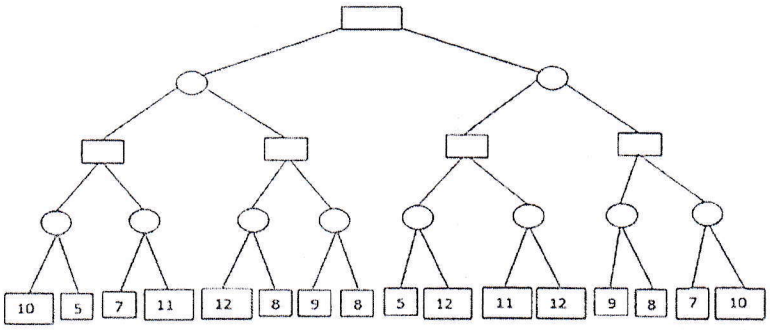
May-June 2026
(B. Tech) Program: Computer Engineering Scheme : III
Regular Examination: TY Semester: VI
Course Code: CEDLC6034 and Course Name: **Artificial Intelligence & Soft Computing**
Date of Exam: 22/5/2026 Duration: 02.5 Hours Max. Marks: 60

b)	Consider the following facts: 1. Ravi likes all kind of food. 2. Apples and chicken are food 3. Anything anyone eats and is not killed is food 4. Ajay eats peanuts and is still alive 5. Rita eats everything that Ajay eats Prove by resolution that **Ravi likes peanuts** using resolution i) Represent the above facts into FOPL. ii) Convert into clause form. iii) Draw resolution tree		3	Ap
c)	Explain different types of environment with example. Apply PEAS descriptor for automatic vacuum cleaner. (7+3)		1	U
Q.4	**Solve any two questions out of three. (10 marks each)**	20		
a)	Explain Particle Swarm Optimization with its working principle.		6	U
b)	Design of a fuzzy controller for determining wash time of a washing machine. 1. Consider inputs as dirt and grease. 2. Use suitable descriptors for inputs and output. 3. Formulate rule base and explain defuzzification briefly.		5	C
c)	Explain mini max algorithm. Apply alpha beta pruning algorithm on the given graph. Consider the first node as max  		2	Ap

Seat No.:

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

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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)	Explain PEAS. Apply PEAS descriptors for automatic taxi driver.		1	Ap
b)	Describe backward chaining with example.		3	U
c)	Explain problem formulation .Apply step of problem formulation for N queen problem.		2	Ap
Q 2	**Solve any two questions out of three: (05 marks each)**	10		
a)	Consider the given fuzzy sets ˜A and ˜B, find out algebraic sum, algebraic product, bounded sum and bounded difference. . ˜A $=\{\frac{0.2}{x1}+\frac{0.3}{x2}+\frac{0.7}{x3}+\frac{0.4}{x4}\}$ ˜B $=\{\frac{0.8}{x1}+\frac{0.2}{x2}+\frac{0.5}{x3}+\frac{0.3}{x4}\}$		4	Ap
b)	Differentiate between fuzzification and defuzzification with suitable examples.		5	U
c)	Explain pheromone evaporation and its importance.		6	U
Q.3	**Solve any two questions out of three. (10 marks each)**	20		
a)	Explain min max composition. Find i) max-min composition and ii) max-product composition between the fuzzy relations for two given fuzzy relations $R1=\begin{bmatrix}0.6 & 0.3\\ 0.4 & 0.9\end{bmatrix}$ $R2=\begin{bmatrix}1 & 0.5 & 0.5\\ 0.8 & 0.4 & 0.7\end{bmatrix}$		4	Ap

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