



Faculty of Engineering

End Semester Examination May 2025

CA5EL04 Artificial Intelligence

Programme	:	MCA / BCA-MCA (Integrated)	Branch/Specialisation	:	-
Duration	:	3 hours	Maximum Marks	:	60

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Section 1 (Answer all question(s))

Marks CO BL
1 2 2

Q1. Which of the following is not an application of Artificial intelligence?

Rubric	Marks
Database management system	1

- ☐ Natural Language Processing
☐ Computer vision

☐ Digital Assistant
☒ Database management system

Q2. Which statement is false with respect to knowledge in AI?

1 1 1

Rubric	Marks
knowledge is not varying time to time	1

- ☐ The knowledge must capture Generalization.
☐ It is huge.

☐ It can easily be modified to correct errors and to reflect changes.
☒ Knowledge is not varying time to time.

Q3. Blind search can be used for which of the following situations?

1 2 1

Rubric	Marks
small search space	1

- ☐ Real life simulation
☐ Advanced game theory

☒ Small search space
☐ None of the above

Q4. Which of the following mentioned searches are heuristic searches?

1 2 1

Rubric	Marks
Best first search	1

- ☐ Random Search
☐ Breadth First Search

☐ Depth First Search
☒ Best First Search

Q5. _____ is the ability to represent all kinds of knowledge that are needed in that domain.

1 3 2

Rubric	Marks
Representational Adequacy	1

- ☒ Representational Adequacy
☐ Inferential Efficiency

☐ Inferential Adequacy
☐ Acquisitional Efficiency

Q6. From which rule the modus ponens is derived?

1 3 1

Rubric	Marks
Inference Rule	1

- ☒ Inference Rule ☐ Module Rule
☐ Both (A) & (B) ☐ None of these

Q7. The STRIPS representation in AI planning is used to-

1 4 1

Rubric	Marks
Represent actions in planning problem	1

- ☐ Encrypt planning data ☐ Encode Network protocols
☒ Represent actions in planning problem ☐ Optimize data storage in planning

Q8. Which value is assigned to alpha and beta in the alpha-beta pruning?

1 4 4

Rubric	Marks
both alpha =max & beta=min	1

- ☐ Alpha = max ☐ Beta = min
☐ Beta = max ☒ Both Alpha = max & Beta = min

Q9. Which of the following is not a Characteristics of Expert Systems?

1 5 2

Rubric	Marks
Unreliable	1

- ☐ Understandable ☐ Highly responsive
☒ Unreliable ☐ High performance

Q10. A _____ is nothing but an expert system without knowledge base.

1 5 1

Rubric	Marks
shell	1

- ☐ Tools ☒ Shell
☐ Expert System ☐ Knowledge

Section 2 (Answer all question(s))

Marks CO BL

Q11. What are the approaches to AI? Explain.

4 1 1

Rubric	Marks
Strong AI,Weak AI	4

Q12. (a) State out features of LISP programming. Describe any four basic list manipulation functions of LISP.

6 1 2

Rubric	Marks
feature	2
list functions	4

(OR)

(b) What are the characteristics of AI problems? Explain the areas where AI can be applied.

Rubric	Marks
characteristics	2
application area	4

Section 3 (Answer all question(s))

Marks CO BL

Q13. How will you formally specify problem definition?

2 2 3

Rubric	Marks
definition	2

Q14. (a) Write algorithm of Problem Reduction (AND-OR Graph) with example diagram.

8 2 1

Rubric	Marks
algorithm	4
example	4

(OR)

(b) Solving the following crypt arithmetic problem-

SEND
+ MORE
= MONEY

Rubric	Marks
full solution	8

Section 4 (Answer all question(s))

Marks CO BL

Q15. Explain inferential knowledge and procedural knowledge with example.

4 3 2

Rubric	Marks
Inferential knowledge	2
Procedural knowledge	2

Q16. (a) Convert the following sentence to predicate logic (Any Six)-

6 3 3

- (i) Marcus was a man.
- (ii) Marcus was a Pompeian.
- (iii) All Pompeians were Romans.
- (iv) Caesar was a ruler.
- (v) All Romans were either loyal to Caesar or hated him.
- (vi) Everyone is loyal to someone.
- (vii) People only try to assassinate rulers they are not loyal to.
- (viii) Marcus tried to assassinate Caesar.
- (ix) Everyone can fool some person all the time.

Rubric	Marks
each sentence carry 1 marks	6

(OR)

(b) Define Horn clause. Write normal steps for conversion to a clause form.

Rubric	Marks
horn clause definition	1
steps for conversion	5

Section 5 (Answer any 2 question(s))

Marks CO BL

Q17. Define Planning. What are the components of planning system that are needed for representing a plan?

5 4 2

Rubric	Marks
Planning definition	2
Components of planning system	3

Q18. How will you solve block world problem with Goal stack Planning?

5 4 1

Rubric	Marks
2+3	5

Q19. Explain minimax search procedure with example.

5 4 1

Rubric	Marks
2+3	5

Section 6 (Answer any 2 question(s))

Marks CO BL

Q20. Name the various types of expert systems and explain any one of them in detail.

5 5 1

Rubric	Marks
Write The name of expert system with little bit explanation	5

Q21. What are the major application areas of an expert system? Explain in detail.

5 5 1

Rubric	Marks
at least 3 areas	5

Q22. What are the different methods of learning in AI? Explain in detail.

5 3 1

Rubric	Marks
Write at least five methods of learning with brief explanation	5
