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Sixth Semester B.Sc. Degree Examination, April 2022

Career Related First Degree Programme Under CBCSS

Group 2 (b) – Computer Science

Core Course

CS 1643 – ARTIFICIAL INTELLIGENCE

(2018 & 2019 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

(Very Short Answer Type)

(One word to maximum of one sentences. Answer **all** questions)

1. Define knowledge.
2. Name any two fields where artificial intelligence is used.
3. What is the difference between knowledge and data?
4. What are frames?
5. What do you mean by heuristic information?
6. What is meta knowledge?
7. What is the time complexity of BFS?

P.T.O.

8. The knowledge concerned with meanings of names and phrases is called _____.

9. What is morpheme?

10. LIFER stands for?

(10 × 1 = 10 Marks)

SECTION – B

(Short Answer)

(Not to exceed one paragraph. Answer **any eight** questions)

11. Define Artificial Intelligence.

12. What are the components of a knowledge-based system?

13. Write a short note on AI.

14. How is knowledge represented in knowledge-based systems?

15. What is FOPL?

16. What is an open variable?

17. What is a proposition?

18. What is fallacy?

19. Define blind search.

20. How is the search done in BFS?

21. What are the structures used in matching?

22. What do you mean by parsing?

23. What is pragmatic knowledge?

24. Define case grammars.

25. What is a syntactic tree?

26. What is morphology?

(8 × 2 = 16 Marks)

SECTION – C

(Short Essay)

(Not to exceed 120 words. Answer **any six** questions)

27. Write a note on importance of AI.

28. Compare BFS and DFS.

29. Write brief notes on knowledge acquisition and knowledge manipulation.

30. Explain the use of associative networks.

31. What is FOPL? Describe the symbols and rules of combination permitted in FOPL.

32. Write a note on RETE matching algorithm.

33. What is a Well Formed Formula? What are its properties?

34. Write a note on searching And-Or graphs.

35. What is travelling salesman problem?

36. Explain the levels of knowledge used in language understanding.

37. Write a note on systemic grammars.

38. How is bottom up parsing done?

(6 × 4 = 24 Marks)

SECTION – D

(Long Essay)

(Answer **any two** questions)

39. Discuss the application of artificial intelligence in various fields.

40. What is a sentence? How will you transform a sentence into clausal form?

41. How the search is done in Depth First Search? Write the algorithm for DFS.

42. Discuss any two search problems.

43. Describe different phases of natural language processing.

44. What are expert systems? Illustrate and describe rule-based architecture for expert systems.

(2 × 15 = 30 Marks)

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Sixth Semester B.Sc. Degree Examination, April 2023

Career Related First Degree Programme Under CBCSS

Group 2(b) – Computer Science

Core Course

CS 1642 : ARTIFICIAL INTELLIGENCE

(2014 – 2017 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A [Very Short Answer type]

In **one** word to maximum of **one** sentences. Answer **all** questions.

1. List the branches of AI.
2. What is meant by searching?
3. What is Best First search?
4. What is meant by Declarative knowledge?
5. What is intelligence?
6. Define parsing.
7. What is reasoning?
8. What is meant by speech synthesis?

P.T.O.

9. What is the use of MYCIN?

10. Define Expert system.

(10 × 1 = 10 Marks)

SECTION – B [short answer]

Not to exceed **one** paragraph, answer any **eight** questions. Each question carries **2** mark.

11. What are the disadvantages of AI?

12. Define game playing in AI.

13. Define Branching Factor.

14. Define Frames.

15. What is Procedural Representation of Knowledge?

16. What are the components of a Script?

17. Define Speech recognition.

18. What is alpha – beta pruning?

19. Define resolution.

20. What is Knowledge base in AI?

21. Write any two applications of DENDRAL.

22. Define Inference Engine.

(8 × 2 = 16 Marks)

SECTION – C [short essay]

Not to exceed **120** words, answer any **six** questions. Each question carries **4** marks.

23. Explain the Turing test in AI briefly.
24. Describe about Min – Max Algorithm in AI.
25. State the differences between Procedural and Declarative Knowledge.
26. What are Normal Forms? Explain briefly.
27. Give details about Syntax and Semantics.
28. Explain briefly about Speech Coding.
29. Write a short note on ambiguity in Natural Language.
30. Explain in short about software agents and its properties.
31. Explain Robotics in AI.

(6 × 4 = 24 Marks)

SECTION – D [Long Essay]

Answer any **two** questions. **Each** question carries **15** marks.

32. Explain
    (a) Depth – first search
    (b) Breadth first search
    (c) Best first search
33. Elaborately describe Knowledge Representation and its approaches.
34. Explain Natural Language Processing in AI.
35. Explain in detail about components and Architecture of Expert Systems.

(2 × 15 = 30 Marks)

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Sixth Semester B.Sc. Degree Examination, April 2023

Career Related First Degree Programme Under CBCSS

Group 2 (b) – Computer Science

Core Course

CS 1643 : ARTIFICIAL INTELLIGENCE

(2018 Admission Onwards)

Time : 3 Hours Max. Marks : 80

SECTION – A (Very Short Answer type)

One word to maximum of one sentence. Answer **all** questions.

1. Define data
2. What is a knowledge base?
3. Expand FOPL
4. What is a WFF?
5. Expand PROLOG
6. Blind search is also known as _____
7. DFS stands for?
8. What is top-down parsing?
9. What is a syntax tree?
10. What is a natural language?

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B (Short Answer)

Not to exceed one paragraph. Answer any **eight** questions.

11. List any four merits of AI
12. What is knowledge manipulation?
13. Why do we use inference rules?
14. Define clause, ground clause and horn clause
15. What do you mean by prepositional logic?
16. Define uninformed search
17. What is bidirectional search
18. Define distance metric.
19. What is resolution?
20. Define grammar.
21. What is a lexicon?
22. What is the use of RETE algorithm?

(8 × 2 = 16 Marks)

SECTION – C (Short Essay)

Not to exceed **120** words. Answer any **six** questions.

23. Explain how knowledge representation and organization is done.
24. Define knowledge. Why is knowledge considered important in AI-based systems?
25. What are the applications of Artificial Intelligence?

26. What is frame structure? Discuss the steps to implement frame structures?

27. Explain the eight-puzzle problem

28. Write down AO* algorithm.

29. Write notes on Chomsky hierarchy of grammars.

30. What is a LUNAR system? What are the main components of LUNAR?

31. Explain the process of building conceptual dependency structures.

(6 × 4 = 24 Marks)

SECTION – D (Long Essay)

Answer any **two** questions.

32. How does knowledge-based system work?

33. Write the algorithm and explain the process of Breadth First Search

34. Compare top-down parsing and bottom-up parsing

35. How is natural language generation done?

(2 × 15 = 30 Marks)

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Sixth Semester B.Sc. Degree Examination, March 2021

Career Related First Degree Programme under CBCSS

Group 2 (b) – Computer Science

Core Course

CS 1643 – ARTIFICIAL INTELLIGENCE

(2018 Admission Regular)

Time : 3 Hours Max. Marks : 80

SECTION – A (Very Short Answer Type)

(One word to maximum of two sentences. Answer **all** questions. **Each** question carries 1 mark)

1. What is epistemology?
2. What is contradictory sentence?
3. How can you say that two sentences are equivalent?
4. What is a Horn clause?
5. What are complementary literals?
6. What are scripts?
7. What is informed search?
8. What is matching?

P.T.O.

9. What is a grammar?

10. What is a lexicon?

(10 × 1 = 10 Marks)

SECTION – B (Short Answer Type)

(Not to exceed **one** paragraph, answer any **eight** questions. **Each** question carries **2** marks)

11. What is artificial intelligence?

12. What is the Turing test?

13. Discuss the importance of knowledge in AI.

14. What is knowledge based systems?

15. Define the syntax of propositional logic.

16. What is tautology? Give example.

17. Write any two equivalence laws.

18. What is a formal system?

19. What is unification in FOPL?

20. What do you understood by conceptual dependencies?

21. Describe hill climbing method in searching.

22. What is an AND-OR graph?

23. Differentiate sets and bags in matching.

24. What is a transition network?

25. What is expert system?

26. What is knowledge engineering environment?

(8 × 2 = 16 Marks)

SECTION -- C (Short Essay)

(Not to exceed **120** words, answer any **six** questions. **Each** question carries **4** marks)

27. Why is AI important?

28. How will you define knowledge?

29. How can you organize knowledge in memory?

30. Write a note on knowledge acquisition.

31. Explain different inference rules of propositional logic with examples.

32. Differentiate soundness and completeness of inference procedure.

33. Write the procedure to transform a sentence into clausal form.

34. How does knowledge represent in frames?

35. Differentiate probabilistic measures and qualitative measures in matching.

36. Write the Chomsky hierarchy of generative grammars.

37. Describe LUNAR System. What are its components?

38. Explain knowledge acquisition and validation process in detail.

(6 × 4 = 24 Marks)

SECTION – D (Long Essay)

(Answer any **two** questions. **Each** question carries **15** marks)

39. Explain different levels of knowledge representation in detail.

40. Describe syntax for FOPL. Give suitable examples.

41. What are associative networks? Write their syntax and semantics of associative networks.

42. Explain any three uninformed search techniques in detail.

43. Compare best-first search algorithm and A* search algorithm.

44. Explain rule-based system architectures in detail.

(2 × 15 = 30 Marks)

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Sixth Semester B.Sc. Degree Examination, March 2021

Career Related First Degree Programme under CBCSS

Group 2(b) – Computer Science

Core Course

CS 1642 : ARTIFICIAL INTELLIGENCE

(2015 – 2017 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A [Very Short Answer type]

(**One** word to maximum of **one** sentence, Answer **all** questions.)

1. A technique that was developed to determine whether a machine could or could not demonstrate the artificial intelligence known as the ————.
2. Which algorithm is used in the Game tree to make decisions of Win/Lose?
3. The inference engine works on ————.
4. ———— is an example of an Expert System.
5. ———— is known as the brain of the expert system.
6. ———— is an optimization technique for the minimax algorithm.
7. What is Meta knowledge?

P.T.O.

8. A _____ is a declarative statement which is either true or false.

9. A clause which is a disjunction of literals with at most one positive literal is known as _____.

10. The process of capturing the inference process as Single Inference Rule is known as _____.

(10 × 1 = 10 Marks)

SECTION – B [Short Answer]

[Not to exceed **one** paragraph, answer **any eight** questions.

Each question carries **2** marks.]

11. What is Artificial Intelligence?

12. What is heuristics? Explain its needs

13. List out any four applications of AI.

14. What is branching factor?

15. What is knowledge representation?

16. Write short notes on Declarative knowledge.

17. What is Tautology?

18. What is Simulated Annealing?

19. What are the limitations of min max algorithm?

20. Explain Modus tollens.

21. Define knowledge base.

22. What is Robort?

(8 × 2 = 16 Marks)

SECTION – C [Short Essay]

[Not to exceed **120** words, answer **any six** questions. Each question carries **4** marks.

23. Differentiate forward and backward reasoning.

24. Explain hill climbing algorithm in detail.

25. Give in detail various types of Game playing.

26. Explain normal forms in predicate logic.

27. Explain syntax and semantics of propositional logic

28. Explain speech coding and recognitions.

29. Writ short note on parsing techniques.

30. Compare MYCIN and DENDRAL inference engines.

31. Write short note on software agents.

(6 × 4 = 24 Marks)

SECTION – D [Long Essay]

[Answer **any two** questions. Each question carries **15** marks.]

32. Explain Depth-first, Breadth-first and Best first search methods in detail.

33. What are the major knowledge representation techniques? Explain with examples.

34. Explain different phases in Natural language processing.

35. Explain Expert System architecture in detail.

(2 × 15 = 30 Marks)

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Sixth Semester B.Sc. Degree Examination, April 2022

Career Related First Degree Programme under CBCSS

Group 2(b) – Computer Science

Core Course

CS 1642 : ARTIFICIAL INTELLIGENCE

(2014 & 2017 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A [Very Short Answer Type]

[One word to maximum of one sentence. Answer **all** questions]

1. Expand NLP.
2. What is MYCIN?
3. What do you mean by game playing in AI?
4. Name two kinds of logic used in knowledge representation.
5. What do you mean by speech processing?
6. What is artificial intelligence?
7. List the components of intelligence.

P.T.O.

8. Mention two types of reasoning.

9. What do you mean by depth of a problem?

10. What is branching factor?

(10 × 1 = 10 Marks)

SECTION – B [Short Answer]

[Not to exceed one paragraph, answer **any eight** questions. Each question carries **2** marks]

11. What is the purpose of Herbrand's theorem?

12. Differentiate declarative knowledge and procedural knowledge.

13. What is non-monotonic reasoning?

14. What is certainty factor?

15. What is a spectrogram?

16. What do you mean by discourse integration?

17. What is the purpose of an inference engine?

18. What is predicate logic?

19. What is probability reasoning?

20. What is speech coding?

21. What is pragmatic analysis in NLP?

22. What is tautology?

(8 × 2 = 16 Marks)

SECTION – C [Short Essay]

[Not to exceed **120** words, answer **any six** questions. Each question carries **4** marks]

23. Write short notes on Fuzzy logic.

24. Explain the different types of ambiguity in NLP.

25. Write short notes on computer vision.

26. Explain semantic nets with an example.

27. Explain depth-first search.

28. Explain Hill climbing search algorithm.

29. Differentiate A* and AO* algorithm.

30. What are the capabilities of an expert system?

31. Write short notes on the applications of robotics.

(6 × 4 = 24 Marks)

SECTION – D [Long Essay]

[Answer **any two** questions. Each question carries **15** marks]

32. Explain the cannibals on the boat problem.

33. Explain various steps in natural language processing.

34. Explain speech recognition systems.

35. Explain the characteristics and components of an expert system.

(2 × 15 = 30 Marks)
