

Roll No. :

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MCA-T302

M.C.A. (IIIrd Semester) Examination, 2021-22

DIGITAL MARKETING

Paper-II

Time Allowed : 1½ Hours

Maximum Marks : 80

Part-A [Marks : 30]

Note :- Answer all questions (50 words each). All questions carry equal marks.

Part-B [Marks : 50]

Note :- Answer any two questions (250 words each). All questions carry equal marks.

Part-A

1. (i) Define Digital Marketing.
- (ii) What do you mean by payment gateways ?
- (iii) What do you understand by the term ‘Page Ranking’ ?

- (iv) What is Meta tags and Meta description ? (a) Wh
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- (v) What is the difference between indexed and crawled content ? (b) V
- (vi) Name some digital marketing channels.
- (vii) What is off-page optimization ? 5. What
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- (viii) What is content marketing ? 7. W
D
i
- (ix) Write is the difference between branding and direct marketing.
- (x) Name the places where keywords are used to optimize site ranking. 8.

Part-B

2. What are the types of digital marketing. "Content Marketing is a way to engage your target audience and grow your network of leads and customers". Do you agree with this statement ? 9.
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3. Why is digital marketing preferred over offline marketing ? List activities used to promote digital marketing.
4. What is SEO ? What are the important types of SEO methods ?

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to
- (a) What is the difference between PR (Page Rank) and SERP (Search Engine Result Page) ?
 - (b) What are the main factors that can affect PPC bidding ?
 6. What is Google Adwords ? Explain Google Adwords Remarketing.
 7. What are the *four C's* of digital marketing ? Differentiate between No-follow and Do-follow links in SEO with example.
 8. How could you leverage social media in order to promote your brand and increase consumer engagement ?
 9. Design a strategic marketing mix components for an organized retail chain of outlets.
 10. What metrics do you use to measure the success of your social campaigns and why ?
 11. Read the following case study of Mercedes Benz and answers the questions asked :

Mercedes Benz seems to win every time with their social media campaigns. The one that stands out to me was back in 2013 when they created what I

still believe to be one of the best Instagram marketing campaigns to date. Mercedes wanted to reach out to the younger audience so they hired five top Instagram photographers to each take the wheel of a new Mercedes CLA. Whoever got the most likes got to keep the car—so they all really worked at it! By the end of the campaign, Mercedes has received:

- (a) 87,000,000 organic Instagram impressions
- (b) 20,00,000 Instagram likes
- (c) 150 new marketing assets (stunning photos)
 - (i) Could you put your followers up for a challenge and make it into a competition or campaign.
 - (ii) Can you do a competition that gets people trying out your product first ?
 - (iii) Think about your target audience. What is a prize they would value ?

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MCA-T501

M.C.A. (Vth Semester) Examination, 2022

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Time Allowed : 1½ Hours

Maximum Marks : 80

Part-A [Marks : 30]

Note :- Answer all questions (**50** words each). All questions carry equal marks.

Part-B [Marks : 50]

Note :- Answer any *two* questions (**250** words each). All questions carry equal marks.

Part-A

1. (i) What is AI ?
- (ii) Define backward chaining.
- (iii) Define transfer function.
- (iv) What is meant by Back Propagation ?

- (v) Define Function Approximation.
- (vi) Define Expert System.
- (vii) What is meant by Supervised Machine Learning ?
- (viii) Define RBF Network.
- (ix) Define Regression Trees.
- (x) Define Multilayer perception.

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Part-B

2. (a) Discuss the problem space and searching techniques of AI.
- (b) How is machine learning related to AI? **15+10**
3. Write short notes on the following :
- (a) Heuristic search techniques
- (b) Resolution principles and unification **12+13**
4. What is meant by Neural Architecture ? Discuss Neural architecture applications. **25**
5. Write short notes on the following :
- (a) Hamming and Hopfield Network
- (b) Neuron Model **10+5+10**
- (c) Linear Separability

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(2)

6. Discuss the component and development process of
Expert System. 25
7. Write short notes on the following :
(i) Planning and Explanation in Expert Systems
(ii) Study of existing expert system 13+12
8. Discuss the different types of machine learning. 25
9. Write short notes on the following :
(i) Gaussian Mixture Models
(ii) Classification and Regression Trees
(iii) Radial Basic Functions and Splines 10+10+5

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MCA-T301

M.C.A. (IIIrd Semester) Examination, 2021-22

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Paper-I

Time Allowed : 1½ Hours

Maximum Marks : 80

Part-A [Marks : 30]

Note :- Answer all questions (**50** words each). All questions carry equal marks.

Part-B [Marks : 50]

Note :- Answer any *two* questions (**250** words each). All questions carry equal marks.

Part-A

1. (i) What is Artificial Intelligence ?
- (ii) Define Production System.
- (iii) What is Neural Network ?

- (iv) What is Linear Separability ?
- (v) What is MYCIN and how it works ?
- (vi) How do you explain learning ?
- (vii) What is RBF Network ?
- (viii) What is decision tree example ?
- (ix) What is the concept of boosting ?
- (x) What is ensemble learning ?

Part-B

2. What is an AI technique ? Describe AI application in brief.
3. Explain problem reduction and AO* algorithm with example.
4. What are the Expert Systems ? Give architecture of expert system. Briefly explain in case studies.
5. Define linear model of regression with their properties. Explain linear model for classification.
6. What is Machine Learning ? Explain the different types of machine learning.

7. Explain the following :
 - (a) Neuron model
 - (b) Hamming and hopfield network
8. What are the types of learning ? Describe decision tree based learning with examples.
9. Write short notes on the following :
 - (a) Gaussian mixture models
 - (b) Vector quantization

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MCA-T303

M.C.A. (IIIrd Semester) Examination, 2021-22

EMBEDDED SYSTEMS

Time Allowed : 1½ Hours

Maximum Marks : 80

Part-A

[Marks : 30]

Note :- Answer all questions (**50** words each). All questions carry equal marks.

Part-B

[Marks : 50]

Note :- Answer any *two* questions (**250** words each). All questions carry equal marks.

Part-A

1. (i) Define single purpose processor.
- (ii) Define Pipelining.
- (iii) What is a customized processor ?

- (iv) What is meant by Watch dog timer ?
- (v) What is meant by Synthesizing processor ?
- (vi) Define Keypad Controller.
- (vii) Define Instruction Set.
- (viii) Define DRAM.
- (ix) Define Cache Memory.
- (x) What is CAN Bus ?

Part-B

2. Explain the design challenges of embedded systems.
3. Explain the application specific instruction set processors.
4. Explain the optimizing custom single processor.
5. Discuss the steps involved in application specific instruction set processor.
6. Discuss the instruction set simulator.

7. Discuss the program and memory data space.
8. Differentiate between SDRAM and RDRAM.
9. Discuss the multi-level bus architectures.
10. Discuss the parallel protocols with example.
11. Explain the pulse width modulator.

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MCA-T305

M.C.A. (IIIrd Semester) Examination, 2021-22

COMPILER DESIGN

Time Allowed : 1½ Hours

Maximum Marks : 80

Part-A

[Marks : 30]

Note :- Answer all questions (**50** words each). All questions carry equal marks.

Part-B

[Marks : 50]

Note :- Answer any *two* questions (**250** words each). All questions carry equal marks.

Part-A

1. (i) What is Assembler ?
- (ii) List tools used for compiler construction.
- (iii) What is Yacc ?
- (iv) What is Lexical Analysis ?

- (v) List top down parser.
- (vi) What is context free grammar ?
- (vii) What is synthesized attributes ?
- (viii) What is symbol table ?
- (ix) List various errors occur in compilation process.
- (x) Differentiate between DFA and NFA.

5.

6.

7.

8.

2. Discuss in detail the various phases of a compiler with suitable example.
3. What is ambiguous grammar ? How can it be converted into unambiguous grammar ?
4. Let G be a Context Free Grammar for which the production rules are given below :

$$S \rightarrow aB|bA$$

$$A \rightarrow a|aS|bAA$$

$$B \rightarrow b|bS|aBB$$

Drive the string 'aaabbabbba' using the above grammar (using Left Most Derivation and Right most Derivation)

5. What are the problems associated with Top Down Parsing ? Also write the production rules to eliminate the left recursion and left factoring problems.
6. Consider the following grammar :

$E \rightarrow E + T \mid T$ $T \rightarrow TF \mid F$ $F \rightarrow F^* \mid a \mid b$

Construct the SLR parsing table and also parse the input "a * b + a".

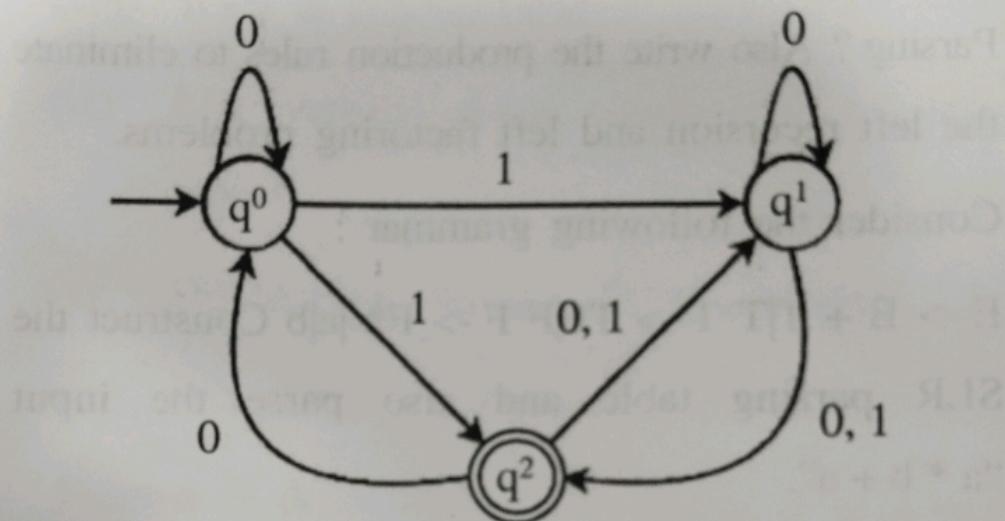
7. Write short notes on the following :
 - (a) Synthesized attributes
 - (b) Inherited attributes
8. Define an augmented grammar. Construct the LR(0) items for the following Grammar :

$$S \rightarrow L = R.$$

9. What is three address code and its importance ?
Convert the given expression :

$a * - (b + c)$ into three address code.

10. Convert the following Non-deterministic Finite Automata (NFA) to Deterministic Finite Automata (DFA). Write every step of conversion



11. (a) Explain the working of LL(1) parser.
(b) What is operator precedence grammar ?

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MCA-T401

M.C.A. (IVth Semester) Examination, 2021

COMPILER DESIGN

Paper-I

Time Allowed : 1½ Hours

Maximum Marks : 80

Part-A [Marks : 30]

Note :- Answer all questions (50 words each). All questions carry equal marks.

Part-B [Marks : 50]

Note :- Answer any two questions (250 words each). All questions carry equal marks.

Part-A

1. Give the answer of following questions :

- (i) Name different phases of compiler.
- (ii) Define the term Finite Automata.

(1)

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- What are the
Consider the
recursion :
- (iii) What is recursive descent parsing ?
 - (iv) Differentiate between top down and bottom up parsers.
 - (v) List error recovery techniques for lexical analysis.
 - (vi) What semantic analysis does ?
 - (vii) What is Indirect Tuples ?
 - (viii) What is Symbol Table ?
 - (ix) What is Context Free Grammar ?
 - (x) What is Syntax Tree ?

Part-B

2. Briefly explain the phases that constitute front end of a Compiler.
3. What is the use of first and follow functions. Calculate the first and follow functions for the given grammar :

$$S \rightarrow A$$

$$A \rightarrow aB/Ad$$

$$B \rightarrow b$$

$$C \rightarrow g$$

4. What are the rules for eliminating left recursion ?

Consider the following grammar and eliminate left recursion :

$$E \rightarrow E + T/T$$

$$T \rightarrow T \times F/F$$

$$F \rightarrow id$$

5. Differentiate between DFA and NFA. Draw a DFA for the language accepting strings starting with 'ab' over input alphabets $\Sigma = \{a, b\}$.
6. How shift reduce parser works ? Considering the string '10201', design a shift-reduce parser for the following grammar :

$$S \rightarrow 0S0 \mid 1S1 \mid 2$$

7. What is three address code mechanism ? Explain in brief by taking suitable example.

8. Consider the following grammar :

$$E \rightarrow EAE \mid id$$

$$A \rightarrow + \mid x$$

Construct the operator precedence parser.

(3)

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9. Explain the working of YACC Compiler.
 10. What is S-attributed and L-attributed SDTs in syntax directed translation ?
 11. Explain any *two* error recovery techniques in brief.

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MCA-E 503-(2) / Re

M.C.A. (V Semester) Examination, 2021-22

EMBEDDED SYSTEMS

Time Allowed : 1½ Hours

Maximum Marks : 80

Part-A [Marks : 30]

Note: Answer **all** questions (50 words each). All questions carry equal marks.

Part-B [Marks : 50]

Note: Answer **any two** questions (250 words each). All questions carry equal marks.

Part-A

1. (i) What is the main difference between general purpose processors and single purpose processors?
- (ii) What are ASIPs?
- (iii) What is the full form of VLIW?
- (iv) What is the main difference between a timer and a counter?
- (v) What is the role of a device controller?

- (vi) Which timers are used for ATMs?
- (vii) What is done in the "application analysis" in ASIP design?
- (viii) What is instruction set simulator?
- (ix) What is the role of cache memory?
- (x) What is the write ability of a memory?

Part-B

2. Discuss various design technologies.
3. Compare superscalar processors v/s VLIW processors.
4. Design a custom hardware to find the largest of three 8-bit numbers.
5. Design a real time clock.
6. How design space is explored for ASIPs?
7. Describe any scheduler based design space exploration technique in detail.
8. How to compose $4k \times 16$ memory using $1k \times 8$ chips?
9. Describe about ARM bus in detail.

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MCA-T303

M.C.A. (IIIrd Semester) Examination, 2021-22

EMBEDDED SYSTEMS

Time Allowed : 1½ Hours

Maximum Marks : 80

Part-A [Marks : 30]

Note :- Answer all questions (50 words each). All questions carry equal marks.

Part-B [Marks : 50]

Note :- Answer any two questions (250 words each). All questions carry equal marks.

Part-A

1. (i) Define single purpose processor.
- (ii) Define Pipelining.
- (iii) What is a customized processor ?

- (iv) What is meant by Watch dog timer ?
- (v) What is meant by Synthesizing processor ?
- (vi) Define Keypad Controller.
- (vii) Define Instruction Set.
- (viii) Define DRAM.
- (ix) Define Cache Memory.
- (x) What is CAN Bus ?

Part-B

2. Explain the design challenges of embedded systems.
3. Explain the application specific instruction set processors.
4. Explain the optimizing custom single processor.
5. Discuss the steps involved in application specific instruction set processor.
6. Discuss the instruction set simulator.

1. Discuss the program and memory data space.
8. Differentiate between SDRAM and RDRAM.
9. Discuss the multi-level bus architectures.
10. Discuss the parallel protocols with example.
11. Explain the pulse width modulator.

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MCA-E504-3

M.C.A. Vth Semester Examination, 2022

SOFT COMPUTING

Time Allowed : 1½ Hours

Maximum Marks : 80

Part-A [Marks : 30]

Note :- Answer all questions (50 words each). All questions carry equal marks.

Part-B [Marks : 50]

Note :- Answer any two questions (250 words each). All questions carry equal marks.

Part-A

1. (i) What are the basic requirements of soft computing ?

(ii) Differentiate between Hard Computing and Soft Computing.

- (iii) Compare supervised and unsupervised learning approaches in ANN.
- (iv) What is Activation Function ? Write its importance.
- (v) State the significance of error portion δ_k and δ_j in Back Propagation Network.
- (vi) Compare feed forward and feedback networks.
- (vii) Represent the standard fuzzy set operations using Venn diagram.
- (viii) State the relevance of fuzzification. Explain different types.
- (ix) Consider the discrete fuzzy set defined on the universe $X = \{a, b, c, d, e\}$ as $A = \{1a + 0.9b + 0.6c + 0.3d + 0e\}$. Using Zadhe's notation, find the λ -cut sets for $\lambda = 0.6, 0.3, 0^+$.
- (x) Write *three* application scopes of the Neural Network.

Part-B

2. Discuss about the various types of soft computing.
3. Describe the major areas of soft computing in detail.
4. What do you mean by activation function, bias and delta rule ? Describe different activation functions in neural network.
5. Explain the architecture and training algorithm of Back Propagation Network. Describe the various terminologies used in the algorithm.
6. Discuss the Back Propagation Learning Methods and algorithm in detail.
7. Explain basic structure, working and analysis of adaptive resonance theory.
8. Write the need of defuzzification in fuzzy set theory. Enlist and explain different methods of defuzzification in brief.
9. Describe the self-organizing Fuzzy Logic Control Scheme with a suitable example. Mention its advantages over fuzzy logic controller.