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Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 Web Technology and Its Applications

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Describe the concept of semantic markup in HTML. (07 Marks)
- b. Explain with an example, how different links can be created in HTML? (07 Marks)
- c. Define character entities. Explain any five character entities with an example. (06 Marks)

OR

- 2 a. Demonstrate different levels of styles sheets with an illustrative example. (06 Marks)
- b. Explain any six selectors with an example. (06 Marks)
- c. Explain following with an example (08 Marks)
 - i) overflow
 - ii) @font-face
 - iii) font
 - iv) padding.

Module-2

- 3 a. Create HTML document to display below table :

A Demographic data

Any Image	Average		Red Eyes
	Height	Weight	
Male	1.9	0.003	40%
Female	1.7	0.002	43%

- b. Explain following with code (06 Marks)
 - i) Cell spacing
 - ii) Cell padding
 - iii) thead
 - iv) tfoot(08 Marks)
- c. Write HTML code to create following control widgets on HTML Form. (06 Marks)
 - i) Submit button
 - ii) Progress bar
 - iii) Search box
 - iv) File choose
 - v) Color pallete
 - vi) Date and Time.

OR

- 4 a. Explain possible ways of positioning elements using CSS. (04 Marks)
- b. Explain following with an example (08 Marks)
 - i) z-index
 - ii) float
 - iii) display
 - iv) visibility.
- c. Demonstrate possible ways to construct multicolumn layouts using CSS. (08 Marks)

Module-3

- 5 a. Define client side scripting. Explain importance of client side scripting (04 Marks)
- b. Explain the following with example (10 Marks)
 - i) DOM Tree
 - ii) Element Node
 - iii) Text Node
 - iv) Attribute Node
 - v) Document object.
- c. Create HTML document consists login form with user name and password fields. Validate the form data before submitting by using client side scripting. (06 Marks)

Important Note : 1. Or: completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

OR

- 6 a. Explain possible methods to access HTML elements by Javascript with example. (06 Marks)
 b. With neat diagram, explain how Apache modules and PHP are interfaced and interacted. (06 Marks)
 c. Write PHP script to find an element by using binary search technique. (08 Marks)

Module-4

- 7 a. List super global arrays in PHP. Write PHP script to display server information (Name, Address, Software, Protocol and Time of request). (06 Marks)
 b. Explain with an example different ways of restricting file size. (09 Marks)
 c. Explain following with an illustrative example
 i) Shuffle () ii) in_array() iii) array_walk() iv) isset() v) print_r(). (05 Marks)

OR

- 8 a. Create HTML document consist option to upload file. Write PHP script to receive file and display name, type and size of the file. (08 Marks)
 b. Explain different type of possible errors that occurs in PHP. (06 Marks)
 c. Different between two mechanisms of runtime errors with an illustrative example. (06 Marks)

Module-5

- 9 a. Define JQuery. Explain JQuery selectors with suitable code. (08 Marks)
 b. With neat diagram, explain SOAP web services. (06 Marks)
 c. Write JavaScript to process an XML documents. (06 Marks)

OR

- 10 a. Explain the following :
 i) Persistent cookies
 ii) Serialization
 iii) Web Storage
 iv) Passing information via Query string. (08 Marks)
 b. Explain in detail AJAX request with UML sequence diagram. (06 Marks)
 c. Explain process of converting JSON string to JavaScript object and PHP object with code. (06 Marks)

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17CS72

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 Advanced Computer Architectures

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Discuss the elements of modern computer systems with diagram. (10 Marks)
b. Consider the execution of an object code with 2,00,000 instructions on a 400 MHz processor. The program consists of four major types of instructions. The instruction mix and the number of cycles (CPI) needed for each instruction type are given below based on the result of a program trace experiment :

Instruction Type	CPI	Instruction Mix
Arithmetic and Logic	1	60 %
Load / Store	2	18 %
Branch	4	12 %
Memory reference	8	10 %

- i) Calculate the average CPI when the program is executed on a uniprocessor with the above trace results.
ii) Calculate the corresponding MIPS rate based on the CPI obtained in part (i). (10 Marks)

OR

- 2 a. Explain the different types of shared memory processors with diagram. (10 Marks)
b. Discuss the various static interconnection networks with bisection width, node degree, diameter and number of links. (10 Marks)

Module-2

- 3 a. Compare the characteristics of CISC & RISC architectures, with the aid diagram. (10 Marks)
b. Explain the architectures of a VLIW (Very Long Instruction Word) processor and its pipeline operations. (10 Marks)

OR

- 4 a. Draw the architecture of SPARC processor and floating point unit on two separate chips. (10 Marks)
b. Explain the memory page replacement policies used in Virtual Memory Technology. (10 Marks)

Module-3

- 5 a. Explain the Fully – associative cache organisation with mapping examples. (10 Marks)
b. Design a pipeline unit for fixed point multiplication of 8 – bit integers using CSA and CPA. (Carry Save Adder and Carry Propagation Adder). (10 Marks)

OR

- 6 a. Discuss the central and distributed arbitration techniques with the aid of timing diagrams. (10 Marks)
- b. Consider the following pipeline reservation table :

	1	2	3	4
S1	X			X
S2		X		
S3			X	

- i) What are the Forbidden latencies?
- ii) Draw the state transition diagram.
- iii) List all the sample and greedy cycles.
- iv) Determine the optimal constant latency cycle and minimum average latency.
- v) Determine the throughput of the pipeline, if the pipeline clock period be $\tau = 20$ ns. (10 Marks)

Module-4

- 7 a. Explain the cache coherence problems in data sharing and in process migration with possible solution. (10 Marks)
- b. Describe the architecture of the connection machine – cm – 2 with processor array and processor nodes. (10 Marks)

OR

- 8 a. Compare the static and dynamic data flow computers. Draw the dataflow graph for computing $\cos x$. (10 Marks)

$$\cos x \approx 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!}$$

- b. Explain the three types of cache directory protocols. (10 Marks)

Module-5

- 9 a. Explain the Shared – Variable model of parallel models. (10 Marks)
- b. Describe the principles of Synchronization. (10 Marks)

OR

- 10 a. Explain the Tomasulo's Algorithm, with example. (10 Marks)
- b. Describe the following : (10 Marks)
- i) Reorder Buffer ii) Register Renaming.

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17CS73

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 Machine Learning

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Find the maximally general hypothesis and minimally specific hypothesis for the training examples given in the table below, using candidate elimination algorithm.

Day	Sky	Air Temperature	Humidity	Wind	Water	Forecast	Enjoy sport
1	Sunny	Warm	Normal	Strong	Warm	Same	Yes
2	Sunny	Warm	High	Strong	Warm	Same	Yes
3	Rainy	Cold	High	Strong	Warm	Change	No
4	Sunny	Warm	High	Strong	Cool	Change	Yes

(10 Marks)

- b. Explain List-then-eliminate algorithm. (05 Marks)
c. List areas/disciplines that have influenced machine learning. (05 Marks)

OR

- 2 a. Define machine learning. Explain the various stages involved in designing a learning system in brief. (10 Marks)
b. Explain in detail, the perspectives and issues in machine learning. (05 Marks)
c. Explain Find_S algorithm. (05 Marks)

Module-2

- 3 a. Discuss the issues of avoiding over fitting data, missing values and handling continuous data in decision trees. (09 Marks)
b. Derive the decision tree for the following transactions:

Txn Id	Refund	Marital status	Taxable Income	Cheat
1	Yes	Single	125 K	No
2	No	Married	100 K	No
3	No	Single	70 K	No
4	Yes	Married	120 K	No
5	No	Divorced	95 K	Yes
6	No	Married	60 K	No
7	Yes	Divorced	220 K	No
8	No	Single	85 K	Yes
9	No	Married	75 K	No
10	No	Single	90 K	Yes

(11 Marks)

OR

- 4 a. Construct the decision trees for the following expressions:
(i) $A \text{ XOR } B$ (ii) $A \vee (B \wedge C)$ (06 Marks)
b. Explain the issues of decision tree learning. (06 Marks)
c. Explain briefly on reduced error pruning and rule post pruning. (08 Marks)

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Module-3

- 5 a. Discuss the perceptron training rule and delta rule that solves the learning problem of perceptron. (10 Marks)
- b. List down the properties of neural networks. Under what circumstances artificial neural network will be considered for learning the system. (10 Marks)

OR

- 6 a. Explain back propagation algorithm. (10 Marks)
- b. What set of functions can be represented by feed-forward networks? (05 Marks)
- c. What is squashing function? Why it is needed? (05 Marks)

Module-4

- 7 a. Explain and derive Brute Force MAP algorithm. (10 Marks)
- b. Explain Bayesian belief networks and conditional independence with examples. (10 Marks)

OR

- 8 a. Derive the expression for Maximum Likelihood hypothesis. (10 Marks)
- b. Explain Naïve Bayes classifier. (05 Marks)
- c. Discuss on Maximum Description Length Principle. (05 Marks)

Module-5

- 9 a. Explain briefly on estimating hypothesis accuracy. (10 Marks)
- b. Explain central limit theorem. (04 Marks)
- c. Explain reinforcement learning with examples. (06 Marks)

OR

- 10 a. Explain K-Nearest neighbor learning algorithm and distance weighted nearest neighbor algorithm. (10 Marks)
- b. Discuss on locally weighted regression. (05 Marks)
- c. Write down the Q-Learning algorithm. (05 Marks)

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Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 Natural Language Processing

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain the issued and processing complexities in NLP. (05 Marks)
b. Explain the components of transformational grammer with an example. (10 Marks)
c. With a diagram, explain the components of Governing and Binding. (05 Marks)

OR

- 2 a. Explain the various levels of processing and the types of knowledge it involves. (10 Marks)
b. Illustrate the bi-gram model by considering the Training Set :
"The Arabian Knights
These are the fairy tales of the east
The stories of the Arabian knights are translated in many languages.
Test Sentence (s) : The Arabian Knights are the fairy tales of the east. (10 Marks)

Module-2

- 3 a. Compute the minimum edit distance between words "tutor" and "tumour". (05 Marks)
b. Explain the phrase level constructions from synthetic Analysis in detail. (10 Marks)
c. Explain the Rule based tagger from word level Analysis. (05 Marks)

OR

- 4 a. Explain Top-down parsing and Bottom up parsing by considering the sentence as "point the door". (10 Marks)
b. Apply the Early parsing Algorithm for the sentence "astronomers saw stars with ears" and generate the sequence of states from the given grammer.

S → NP VP	N → astronomers
NP → NP PP	VP → VP PP
PP → P NP	N → ears
NP → N	P → with
VP → V NP	V → stars
	V → saw

(10 Marks)

Module-3

- 5 a. Explain the shortest path Hypothesis and learning with dependency path in detail. (10 Marks)
b. Explain with neat diagram the learning frame Architecture. (10 Marks)

OR

- 6 a. Explain the following Indexing services
i) Document processing
ii) Clause processing
iii) Linguistic processing (10 Marks)
b. Explain Frame semantics and semantics Role labeling in detail. (10 Marks)

Module-4

- 7 a. Write a note on word matching feedback system. (10 Marks)
b. Explain Latent Semantic Analysis (LSA) feedback systems. (10 Marks)

OR

- 8 a. Explain Cohesion and Coh-metrix in detail. (10 Marks)
b. Explain sequence model estimation. (10 Marks)

Module-5

- 9 a. Explain basic Information retrieval process with diagram. (05 Marks)
b. Discuss the Boolean model with an example in classical information retrieval model. (10 Marks)
c. Explain the Applications of Wordnet. (05 Marks)

OR

- 10 a. Illustrate the relationship between frequency of words and their rank order in Zipf's law. (05 Marks)
b. Explain the fuzzy model in Alternative models of IR. (10 Marks)
c. Explain the Applications of Framenet. (05 Marks)

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17CS754

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 Storage Area Networks

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What is a data center? List the core elements of data center. Explain the characteristics of data center. (10 Marks)
- b. Explain with diagram the evolution of storage architecture. (10 Marks)

OR

- 2 a. Describe with block diagram the components of Intelligent Storage System (ISS). (10 Marks)
- b. What is a file system? Explain the process of mapping user files to the disk storage. (10 Marks)

Module-2

- 3 a. Explain with diagram the components of Fiber Channel (FC) storage area network. (10 Marks)
- b. What is NAS? Explain the component of NAS with diagram. (10 Marks)

OR

- 4 a. Explain ISCSI implementation with schematic diagram. (10 Marks)
- b. What is zoning? Explain the zoning types with neat diagram. (10 Marks)

Module-3

- 5 a. Explain with a diagram Business Continuity(BC) planning life cycle. (10 Marks)
- b. What is data deduplication? Explain its implementation methods. (10 Marks)

OR

- 6 a. Explain direct attached and LAN based back up topologies with diagram. (10 Marks)
- b. Differentiate between synchronous and asynchronous based remote replication model. (10 Marks)

Module-4

- 7 a. Explain the different types of cloud service models. (10 Marks)
- b. Define cloud computing. Explain the characteristics and benefits of cloud computing. (10 Marks)

OR

- 8 a. With diagram, explain cloud deployment models. (10 Marks)
- b. Explain In-band storage appliance with neat diagram. (10 Marks)

Module-5

- 9 a. List and explain different storage infrastructure management activities. (10 Marks)
- b. Explain (Fiber Channel) FC SAN security architecture with a diagram. (10 Marks)

OR

- 10 a. Explain information security framework designed to achieve security goals. (06 Marks)
- b. What is Information Lifecycle Management (ILM)? List and explain the benefits of ILM. (08 Marks)
- c. Explain storage Tiering. (06 Marks)

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