Hall Ticket Number :										

R-19

Code: 19DF34T

M.C.A. III Semester Regular Examinations February 2021

Advanced Java for Web Technologies

Max. Marks: 60 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Explain list tags in HTML with example	6M	1	L1
	b)	Develop web page in HTML to design time table of your course using <Table> tags	6M	1	L3
		OR			
2.		Explain control structures in JavaScript with examples	12M	1	L3
		UNIT–II			
3.	a)	What is web server? Explain life cycle of servlets.	6M	2	L1
	b)	Explain HTTP requests with example	6M	2	L2
		OR			
4.	a)	Discuss about servlets API	6M	2	L1
	b)	Discuss about JSDK	6M	2	L2
		UNIT–III			
5.	a)	Write a web program to create login web page using JSP	6M	3	L4
	b)	Discuss about JSTL with example.	6M	3	L4
		OR			
6.		Discuss about Tomcat web server	12M	3	L1
		UNIT–IV			
7.	a)	Discuss about Java beans in web server with example	6M	4	L4
	b)	Develop dynamic web page using JSP	6M	4	L6
		OR			
8.		Write about error handling and debugging with example	12M	4	L5
		UNIT–V			
9.		Explain JDBC architecture with neat diagram	12M	5	L1
		OR			
10.	a)	Explain the procedure to access database using JDBC with example.	6M	5	L4
	b)	Discuss about MySQL	6M	5	L2

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Hall Ticket Number :										

R-19

Code: 19DF32T

M.C.A. III Semester Regular Examinations February 2021

Computer Networks

Max. Marks: 60 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Define a network. What are the uses of Computer Networks?	6M	CO1	L2
	b)	What is Multiplexing? Mention the significance and usage of multiplexing in networks.	6M	CO1	L2
		OR			
2.		Demonstrate ISO/OSI reference model with a neat sketch.	12M	CO1	L3
		UNIT–II			
3.		Illustrate the Sliding window protocol using *Go-Back N* and *Selective Repeat* techniques.	12M	CO2	L3
		OR			
4.	a)	Examine the role of ALOHA in multiple access protocols.	6M	CO2	L3
	b)	Why parity checks and check sum are used? Explain parity checks and check summing methods with an example.	6M	CO2	L2
		UNIT–III			
5.	a)	Describe the principle of Flooding. Mention its advantages and applications.	6M	CO3	L2
	b)	Sketch the IPV4 packet format and explain the importance of IP protocol in the internet.	6M	CO3	L2
		OR			
6.		Elaborate the process of Internetworking in the Network layer.	12M	CO3	L2
		UNIT–IV			
7.		What is DNS? Discuss about the Domain Name System (DNS).	12M	CO4	L2
		OR			
8.	a)	Explain Leaky Bucket Algorithm?	6M	CO4	L2
	b)	Compare and contrast TCP and UDP protocols.	6M	CO4	L2
		UNIT–V			
9.		Apply an RSA algorithm with a suitable example.	12M	CO5	L3
		OR			
10.	a)	Write short notes on Pretty Good Privacy (PGP).	6M	CO5	L2
	b)	Write shorts notes on Digital Signatures.	6M	CO5	L2

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R-19

Code: 19DF36T

M.C.A. III Semester Regular Examinations February 2021

Computer Organization

Max. Marks: 60 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Apply the representation of +65 and -65 in sign magnitude, Sign 1's complement and sign 2's complement representation?	6M	CO1	L2
	b)	Differentiate between binary code and BCD code?	6M	CO1	L1
		OR			
2.	a)	Solve Simplify to a sum of 3 terms: A'C'D'+AC'+BCD+A'CD'+A'+AB'C' Given AB' + AB = C, Show that AC' + A'C = B	6M	CO1	L1
	b)	Design a combinational logic circuit with 3 input variables that will produce logic 1 output when more than one input variables are logic 1?	6M	CO2	L2
		UNIT–II			
3.	a)	Distinguish between SRAM and DRAM and draw static RAM cell?	6M	CO2	L1
	b)	Explain in detail various cache memory organizations?	6M	CO3	L3
		OR			
4.	a)	Explain the following terms: i) Cache updation policies. ii)cache hit and cache miss	6M	CO2	L2
	b)	Explain What would be the main advantages and disadvantages of making the size of cache blocks larger or smaller?	6M	CO3	L3
		UNIT–III			
5.	a)	List and explain different types of instruction formats with examples.	6M	CO1	L2
	b)	Write short notes on shift and rotate instruction	6M	CO3	L1
		OR			
6.	a)	What are addressing modes? Give an overview of the addressing modes	6M	CO1	L1
	b)	What is register transfer notation? Write and explain these notations to three-address, two-address, single address and zero-address instruction types.	6M	CO2	L2
		UNIT–IV			
7.	a)	With a neat pin diagram, explain 8086 CPU architecture	6M	CO1	L1
	b)	What is an interrupt? List various types of interrupts hold by 8086	6M	CO3	L3
		OR			
8.	a)	With suitable examples, discuss conditional and unconditional transfer	6M	CO1	L1
	b)	Discuss in detail about data transfer and manipulation instructions	6M	CO2	L2
		UNIT–V			
9.	a)	Give the block diagram of a control memory and the associated hardware needed for selecting the next micro-instruction address.	6M	CO3	L2
	b)	What is the difference between isolated I/O and memory mapped I/O? What are the advantages and disadvantages of each?	6M	CO2	L2
		OR			
10.	a)	Demonstrate the mechanism of DMA	6M	CO3	L3
	b)	List the functionalities of I/O interface. Draw and explain a combined input/output interface circuit?	6M	CO2	L3

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Hall Ticket Number :										

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Code: 19DF35T

M.C.A. III Semester Regular Examinations February 2021

Design & Analysis of Algorithms

Max. Marks: 60 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)

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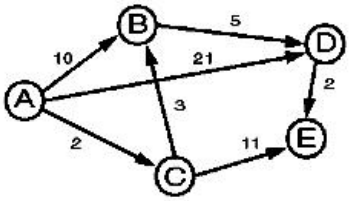
			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Formally define the asymptotic notations big-oh (O), omega (Ω) and theta (θ). Give an example for each of the notations.	6M	CO1	L1

	b)	Let T(n) be the number of times "Welcome to AITS Rajampet" is printed when 'n' is given as input to the Display() algorithm. Determine T(20).
		Algorithm Display (n)
		{
		if n= 1
		print "Welcome to AITS Rajampet "
		return
		else
		print "Welcome to AITS Rajampet "
		Display(n-1)
		Display(n-1)
		}
			6M	CO1	L2

		OR			
2.	a)	Let $f(n) = a_m n^m + a_{m-1}n^{m-1} + a_{m-2} n^{m-2} + \ldots + a_1 n + a_0$, be a degree m polynomial in n and $a_m > 0$. Show that $f(n) = O(n^m)$.	6M	CO1	L2
	b)	With pseudo code explain linear search algorithm for solving searching problem. Give a recurrence for the worst-case running time of linear search algorithm and represent it using θ-notation.	6M	CO1	L2
		UNIT–II			
3.	a)	Explain the general method of divide and conquer.	6M	CO1	L1
	b)	Write pseudo code and a suitable example explain merge sort algorithm to solve sorting problem. Give a recurrence for the running time of merge sort algorithm and represent it using θ-notation.	6M	CO2	L2
		OR			
4.	a)	With pseudo code explain binary search algorithm for solving searching problem. Give a recurrence for the worst-case running time of binary search algorithm and represent it using O-notation.	6M	CO2	L2
	b)	Sort the keys H, L, P, T, W, G, E, C, A in ascending order by applying quick sort.	6M	CO2	L2
		UNIT–III			
5.	a)	What is the advantage of dynamic programming over divide and conquer? Explain the general method of dynamic programming.	6M	CO3	L2

b) Define *all pairs shortest paths* (APSP) problem. Write pseudo code and explain an algorithm to solve all-pairs shortest-paths problem. Apply your algorithm to the following graph.

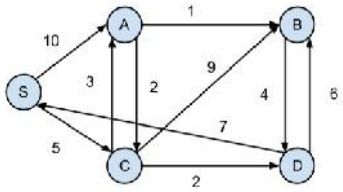


6M CO3 L3

OR

6. a) What is Minimum Spanning Tree (MST)? Draw a simple, connected, weighted and undirected graph with 6 vertices and 12 edges. Find a MST of the graph drawn by applying Kruskal's algorithm. 6M CO4 L6

b) Write pseudo and explain an algorithm for solving single source shortest path problem. Analyze the running time of your algorithm. Apply your algorithm to the following instance by considering vertex S as source.



6M CO4 L3

UNIT–IV

7. a) Give a backtracking solution to 8-queens problem. 6M CO5 L2

b) Explain briefly the main steps in a branch-and-bound solution to 0/1 knapsack problem. 6M CO5 L2

OR

8. a) Give a backtracking solution to sum of subsets problem. 6M CO5 L2

b) Differentiate between FIFO and LC branch and bound techniques. 6M CO5 L2

UNIT–V

9. a) Define the complexity classes: P, NP, NP-hard and NP-complete. 6M CO6 L1

b) Draw a Venn diagram for the complexity classes P, NP, NP-hard and NP-complete under the assumption that P is not equal to NP. 6M CO6 L4

OR

10. a) How to show that a problem is NP-complete? Explain with an example. 6M CO6 L2

b) Differentiate between deterministic and nondeterministic algorithms. Give a nondeterministic algorithm for searching problem. 6M CO6 L2

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Hall Ticket Number :										

R-19

Code: 19DF31T

M.C.A. III Semester Regular Examinations February 2021

Operating Systems

Max. Marks: 60 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Define operating system. Explain the key concern of a operating system.	6M	CO1	L1
	b)	Explain multiprogramming and time sharing system.	6M	CO2	L2
		OR			
2.		What are system call? Briefly point its types.	12M	CO4	L1
		UNIT–II			
3.	a)	Explain process control back.	6M	CO2	L2
	b)	Explain long term and short term scheduling.	6M	CO2	L1
		OR			
4.	a)	Define process. Process states and transition with suitable example.	6M	CO1	L2
	b)	Is CPU scheduling necessary? Discuss the five different scheduling criteria's used in the computing scheduling mechanism.	6M	CO4	L3
		UNIT–III			
5.	a)	Explain briefly about methods for handling dead locks.	6M	CO4	L1
	b)	Explain the dead lock characterization.	6M	CO3	L2
		OR			
6.	a)	How to recovery from dead lock explain in detail.	6M		
	b)	Define dead lock. Write short notes on a necessary conditions that arises dead locks	6M	CO4	L4
		UNIT–IV			
7.	a)	Explain the various disk scheduling algorithm with examples	6M	CO3	L2
	b)	Explain various allocation method in implementing file system	6M	CO2	L2
		OR			
8.	a)	Explain demand paging system.	6M		
	b)	Consider the following page reference stream? 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 how many page faults would occur for LUR and FIFO replacement algorithm assuming 3 frames? Which one of the above is most efficient?	6M	CO4	L3
		UNIT–V			
9.	a)	Explain briefly access matrix method of system protection.	6M	CO4	L2
	b)	Explain difference between worms and viruses with details	6M	CO4	L1
		OR			
10.		Explain in detail about program threats	12M	CO1	L2

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Hall Ticket Number :										

R-19

Code: 19DF33T

M.C.A. III Semester Regular Examinations February 2021

PHP with *MYSQL*

Max. Marks: 60 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	What is the difference between Client-side Vs Server-side scripting?	6M	CO1	L3
	b)	Write short notes on PHP and MYSQL.	6M	CO1	L1
		OR			
2.		What are the various conditional statements available in PHP? Explain with examples.	12M	CO2	L1
		UNIT–II			
3.		How do you create a user defined function in PHP?	12M	CO2	L1
		OR			
4.		How to find and fix the bugs in your PHP script?	12M	CO3	L2
		UNIT–III			
5.	a)	Explain various CRUD operations in detail.	6M	CO2	L3
	b)	What are the various features of Database management system?	6M	CO2	L3
		OR			
6.	a)	Distinguish Relational databases vs spreadsheets.	5M	CO1	L3
	b)	Construct a relational database design for Employee.	7M	CO2	L1
		UNIT–IV			
7.		How to handle and log PHP errors as a MySQL or PHP admin?	12M	CO3	L2
		OR			
8.		Write a PHP Script to list data in the table.	12M	CO3	L3
		UNIT–V			
9.		What is meant by Dynamic templating? Write a PHP Script that scrolls a text message in the status bar of the browser window.	12M	CO4	L2
		OR			
10.		What security considerations you found as a PHP developer as developing a PHP application.	12M	CO3	L2

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