Total No. of Questions: 3

MEDI-CAPS UNIVERSITY
Knowledge is Power

Enrollment No EN22CS304498

Faculty of Engineering / Science

Mid Sem-I Examination February-2024

CS3CO38/ BC3CO64 Theory of Computation

Programme: B.Tech (CS) / B. Sc. **Branch/Specialization:** CSE

Duration: 1:30 Hrs. **Maximum Marks: 30**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	CO	PO	PSO
Q.1	i.	How many n-length strings are accepted by a given transition function of DFA? $\delta(A,0)=D$, $\delta(A,1)=B$, $\delta(B,0)=D$, $\delta(B,1)=C$ $\delta(C,0)=C$, $\delta(C,1)=C$, $\delta(D,0)=D$, $\delta(D,1)=D$ Consider A is a initial state & C is a final state (a) $2^{n-3}/n>3$ (b) $2^{n-2}/n>2$ (c) $2^{n-1}/n>1$ (d) $2^n/n>0$	1	BL_2	CO_{01}	PO_{01}	
	ii.	Which two of the following out of four regular expressions(RE) are equivalent: (I) 0* (II) (00)* (III) 0(00)* (IV) (00)*(ε+0) (a) I & II (b) II & III (c) III & IV (d) I & IV	1	BL_2	CO_{01}	PO_{01}	
	iii.	Which of the following is true (a) $\Sigma^+.\Sigma^+=\Sigma^+-\Sigma'$ (b) $\Sigma^*\subseteq\Sigma^+$ (c) $\Sigma^+\cup\Sigma^+=\Sigma^*$ (d) $\Sigma^*\cap\Sigma^+=\Sigma^*$	1	BL_1	CO_{01}	PO_{01}	
	iv.	Which of the following statements is correct? (a) DFA is more powerful than NFA (b) NFA is more powerful than DFA (c) DFA is more efficient than NFA (d) NFA is more efficient than DFA	1	BL_1	CO_{02}	PO_{02}	
	v.	The sum of minimum and maximum number of final states for a DFA n states is equal to:	1	BL_1	CO_{02}	PO_{02}	

(a) n (b) n+1
(c) n+2 (d) n-1

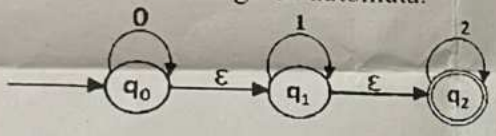
vi. Which of the following is a correct statement? 1 BL.1 CO.2 PO.2
(a) Moore machine has no accepting states
(b) Mealy machine has accepting states
(c) We can convert Mealy to Moore but not vice versa
(d) All of the mentioned

Q.2 i. What are the difference between DFA,NFA 3 BL.1 CO.2 PO.1

ii. Construct MDFA for the following language over $\Sigma=\{a,b\}$ 4 BL.2 CO.1 PO.1
(a) start & end with different symbols
(b) Not divisible by 5 length strings

iii. Design Mealy and Moore machine to find 1's & 2's complement of a binary number. 5 BL.2 CO.1 PO.1

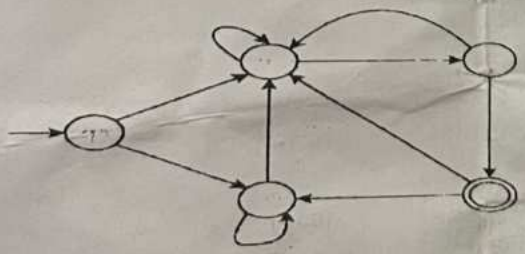
OR ε-remove from the given automata. 5 BL.2 CO.1 PO.1



Q.3 i. Explain Kleen's Theorem with different rules. 3 BL.2 CO.3 PO.1

ii. State pumping lemma for regular languages. Also proof that $L=\{a^n/n$ is a prime number$\}$ is not regular language. 4 BL.2 CO.3 PO.1

iii. Minimize the given finite automata. 5 BL.2 CO.3 PO.1



OR iv. Explain Myhill Nerode theorem. 5 BL.2 CO.3 PO.1

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Total No. of Questions: 3

MEDI-CAPS UNIVERSITY Knowledge is Power

Enrollment No....EN22CS301719

Faculty of Engineering / Science

Mid Sem-I Examination February-2024

CS3CO35 / BC3CO61 Microprocessor & Interfacing

Programme: B.Tech (CS) / B. Sc. Branch/Specialization:

Duration: 1.5Hrs. **Maximum Marks: 30**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	CO	PO	PSO
Q.1	i.	What is maximum address capacity of 8085 Microprocessor? a. 64KB b. 1 MB c. 4 KB d. 32KB	1	BL02	CO1	PO3, PO11	
	ii.	Which of the following are temporary registers? a. B& C b. H&L c. W& Z d. D&E	1	BL01	CO1	PO3, PO11	
	iii.	Which of the following interrupt has lowest priority in 8085? a. RST 7.5 b. RST 6.5 c. RST 5.5 d. INTR	1	BL02	CO1	PO3, PO11	
	iv.	How many types of instruction sets are there? a.5 b.2 c. 3 d. 6	1	BL01	CO2	PO3,PO5, PO11	
	v.	Which of the following is a 1-byte instruction? a. LDA2500H b. MOVA,B c. MVI B,F2 H d. JMP 2085H	1	BL02	CO2	PO3, PO5, PO11	

	vi.	Identify the correct addressing mode for instruction STA 2300H in 8085 microprocessor? a. Direct Addressing Mode b. Immediate Addressing Mode c. Indirect Addressing Mode d. Register Addressing Mode	**1**	BL02	CO2	PO3, PO5, PO11
Q.2	i.	Explain Control signals used in 8085 microprocessor.	**2**	BL02	CO1	PO3, PO11
	ii.	Differentiate between microcomputer and microprocessor.	**3**	BL02	CO1	PO3, PO11
	iii.	Draw and explain architecture of 8085 Microprocessor.	**7**	BL02	CO1	PO3, PO11
OR	iv.	Draw and explain pin diagram of 8085 Microprocessor.	**7**	BL02	CO1	PO3, PO11
Q.3	i.	What do you mean by instruction set? Explain with an example.	**2**	BL02	CO2	PO3, PO11, PO5
	ii.	Define stack giving one instruction.	**2**	BL02	CO2	PO3, PO11, PO5
	iii.	What are different types of addressing modes in 8085? Explain with examples	**8**	BL02	CO2	PO3, PO11, PO5
OR	iv.	Explain these instructions with example: ADD, LXI, MOV, ANA, XCHG, ORI	**8**	BL03	CO2	PO3, PO11, PO5

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Total No. of Questions: 3

Enrollment No....EN22CS3017119

Faculty of Engineering

Mid Sem-I Examination February-2024

CS3CO36 Operating Systems

Programme: B.Tech

Duration: 1.5 Hrs.

Branch/Specialization: CSE

Maximum Marks: 30

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	CO	PO	PSO
Q.1	i.	The program in the operating system that does processor management is called…… a) Traffic Controller b) Processor scheduler c) Dispatcher d) Job Schedular	1	BL03	CO01	PO01	
	ii.	Which of the following type of operating system is non-interactive? a) Multi-tasking operating system b) Multi-User operating system c) Batch operating system d) Multi-Programming operating system	1	BL01	CO02	PO02	
	iii.	With respect to operating systems, which of the following is valid process state? a) Ready b) Waiting c) Running d) Starving	1	BL03	CO02	PO02	
	iv.	Consider three CPU-intensive processes, which require 10, 20 and 30 time units and arrive at times 0, 2 and 6, respectively. How many context switches are needed if the operating system implements a shortest remaining time first scheduling algorithm? Do not count the context switches at time zero and at the end. a) 1 b) 2 c) 3 d) 4	1	BL02	CO01	PO01	
	v.	Which of the following process scheduling algorithm may lead to starvation? a) FIFO b) Round Robin c) Shortest Job Next d) None of the above	1	BL03	CO02	PO02	
	vi.	The interval from the time of submission of a process to the time of completion is termed	1	BL02	CO01	PO01	

as?

a) waiting time b) turnaround time
c) response time d) throughput

Q.2	i.	Differentiate between time-sharing and multi-programming operating system.	2	BL01	CO01	PO01
	ii.	What are the various types of schedulers? Explain with neat and clean diagram showing where and which schedular works.	3	BL01	CO01	PO01
	iii.	Describe and elaborate various states of a process along with a process transition state diagram.	7	BL01	CO01	PO01
OR	iv.	Explain Critical Section problem with its requirement. Also provide a solution with semaphore and its types.	7	BL01	CO01	PO01
Q.3	i.	Differentiate between Preemptive and non-preemptive scheduling.	2	BL01	CO02	PO02
	ii.	Explain Process Scheduling.	2	BL01	CO02	PO02
	iii.	Explain the concept of Shortest Job First. An operating system uses shortest remaining time first scheduling algorithm for pre-emptive scheduling of processes. Consider the following set of processes with their arrival times and CPU burst times (in milliseconds):	8	BL03	CO02	PO02

Process	Arrival Time	Burst Time
P1	0	12
P2	2	4
P3	3	6
P4	8	5

a) Draw the Gantt Chart.
b)What is the average waiting time (in milliseconds) of the processes?
c)What is the average Turn Around time (in milliseconds) of the processes?

OR	iv.	What is DeadLock? Explain necessary conditions of deadlock to occur. Also Describe Resource Allocation Graph with suitable example and diagram.	8	BL01	CO02	PO02

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Total No. of Questions: 3

Enrollment No.....EN22CS301719.....

Faculty of Engineering / Science

Mid Sem-I Examination February 2024

CS3CO39 / BC3CO65 Database Management System

Programme: B.Tech. / B. Sc.

Duration: 1.5 Hrs. Branch/Specialization: CSE

Maximum Marks: 30

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	CO	PO	PSO
Q.1	i.	Which command is DDL command: a) Create b) Update c) Delete d) Grant	1	BL1	CO1	PO1	PSO1 PSO2
	ii.	Which one is following SQL command is used to add a column in a table? a) UPDATE b) ALTER c) DROP d) INSERT	1	BL3	CO1	PO2	PSO2
	iii.	Which of the following can be a multivalued attribute? a) Date_of_Birth b) Age c) Contact_number d) Name	1	BL3	CO1	PO1	PSO1
	iv.	What does an RDBMS consist of? a) Collection of Records b) Collection of Tables c) Collection of Keys d) Collection of Fields	1	BL2	CO2	PO2	PSO2 PSO4
	v.	In an ER diagram, double line indicates: a) Partial Participation b) Multiple Participation c) Total Participation d) Cardinality N	1	BL3	CO2	PO1	PSO1

	vi.	The attribute name could be structured as an attribute consisting of first name, middle initial, and last name. This type of attribute is called a) Simple attribute b) Composite attribute c) Multivalued attribute d) Derived attribute	1	BL3	CO2	PO2	PSO2 PSO4
Q.2	i.	Explain Entity and Attributes?	2	BL2	CO1	PO1	PSO2
	ii.	What are the main features of DBMS?	3	BL2	CO1	PO3 PO1	PSO4 PSO2
	iii.	What are the major components of DBMS? Discuss the three-level architecture of database system.	7	BL1	CO1	PO1	PSO4 PSO2 PSO4
OR	iv.	Construct an E-R diagram for a hospital with set of patients and set of medical doctors. Associate with each patient a log of various tests and examinations conducted. Construct appropriate tables for the E-R diagram.	7	BL3	CO1	PO1 PO3	PSO2 PSO4
Q.3	i.	What is RDBMS?	2	BL1	CO2	PO1	PSO2 PSO4
	ii.	Write a query to find all the employees whose salary is between 50000 to 100000.	2	BL2	CO2	PO1 PO5	PSO2 PSO4
	iii.	Write the commands for DDL and DML. Explain with a suitable example.	8	BL3	CO2	PO1 PO2	PSO2 PSO4
OR	iv.	Explain JOIN and its types with example.	8	BL3	CO2	PO1 PO2 PO5	PSO2 PSO4

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Total No. of Questions: 3

MEDI-CAPS UNIVERSITY
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Enrollment No....EN.22.CS.30.17.19

Faculty of Engineering / Science

Mid Sem-I Examination February-2024

CS3EW04 / BC3EL05 Internet and Web Technology

Programme: B.Tech (CSE) / B. Sc. (CS) *Branch/Specialization: All*

Duration: 1.5 Hrs. **Maximum Marks: 30**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	CO	PO	PSO
Q.1	i.	A local or restricted communications network, especially a private network created using World Wide Web software is known as: a) Internet b) Intranet c) Extranet d) Supernet	1	BL2	CO1	PO2, PO3, PO5	
	ii.	HTTP stands for: a) Hypertext transmission protocol b) Hypertext transfer protocol c) Hyperlink transfer protocol d) High text transfer protocol	1	BL1	CO1	PO2, PO3, PO5	
	iii.	Safari is an example of: a) Web browser b) Web server c) Web engine d) Website	1	BL1	CO1, CO2	PO2, PO3, PO5	
	iv.	UDP and TCP protocols work on which layer of TCP model: a) Network layer b) Transport layer c) Application layer d) Data link layer	1	BL1	CO2	PO8, PO9, PO10	
	v.	What type of CSS is the following code:	1	BL2	CO2	PO8, 9,10	

<h1 style="color:red;">MedicapsUniversity</h1>

a) Internal CSS
b) External CSS
c) Inline CSS
d) None of the above

vi. Javascript is a ___ language.
a) Object-oriented
b) Object based
c) High level
d) Low level

		1	BL2	CO2	PO8, 9, 10	

Q.2 i. How does DNS work? Explain different domain levels with an example. | 2 | BL2 | CO1 | PO2, PO3, PO5

ii. What is a web server? Explain its architecture and give the difference between web server and application server. | 4 | BL1 | CO1 | PO2, PO3, PO5

iii. What is the main difference between the following protocols: | 6 | BL1 | CO1 | PO2, PO3, PO5
a) SMTP v/s POP3
b) HTTP v/s HTTPs
c) TCP v/s UDP
d) ARP v/s RARP

OR iv. What is TCP/IP model? Explain the function of each layer of TCP/IP. | 6 | BL2 | CO1 | PO2, PO3, PO5

Q.3 i. Explain different types of lists in HTML with their implementation. | 2 | BL3 | CO2 | PO8, 9,10

ii. Create frames in a webpage and style those frames using CSS. | 4 | BL3 | CO2 | PO8, 9,10

iii. Create a table using HTML and CSS. | 6 | BL3 | CO2 | PO8, PO9, PO10

Enrollment No.	Student Name	Marks
101	Vivek Sharma	75
102	Chetan Verma	80

OR iv. Explain the following: | 6 | BL1 | CO2 | PO8, 9,10
a) DTD b) DOM

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Total No. of Questions: 3

Enrollment No. EN22CS3014 98

Faculty of Engineering / Science

Mid Sem-I Examination February 2024

CS3CO39 / BC3CO65 Database Management System

Programme: B.Tech. / B. Sc. Branch/Specialization: CSE

Duration: 1.5 Hrs. **Maximum Marks: 30**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	CO	PO	PSO
Q.1	i.	Which command is DDL command: a) Create b) Update c) Delete d) Grant	1	BL1	CO1	PO1	PSO1 PSO2
	ii.	Which one is following SQL command is used to add a column in a table? a) UPDATE b) ALTER c) DROP d) INSERT	1	BL3	CO1	PO2	PSO2
	iii.	Which of the following can be a multivalued attribute? a) Date_of_Birth b) Age c) Contact_number d) Name	1	BL3	CO1	PO1	PSO1
	iv.	What does an RDBMS consist of? a) Collection of Records b) Collection of Tables c) Collection of Keys d) Collection of Fields	1	BL2	CO2	PO2	PSO2 PSO4
	v.	In an ER diagram, double line indicates: a) Partial Participation b) Multiple Participation c) Total Participation d) Cardinality N	1	BL3	CO2	PO1	PSO1

	vi.	The attribute name could be structured as an attribute consisting of first name, middle initial, and last name. This type of attribute is called a) Simple attribute b) Composite attribute c) Multivalued attribute d) Derived attribute	1	BL3	CO2	PO2	PSO2 PSO4
Q.2	i.	Explain Entity and Attributes?	2	BL2	CO1	PO1 PO3	PSO2 PSO4
	ii.	What are the main features of DBMS?	3	BL2	CO1	PO1	PSO2 PSO4
	iii.	What are the major components of DBMS? Discuss the three-level architecture of database system.	7	BL1	CO1	PO1	PSO2 PSO4
OR	iv.	Construct an E-R diagram for a hospital with set of patients and set of medical doctors. Associate with each patient a log of various tests and examinations conducted. Construct appropriate tables for the E-R diagram.	7	BL3	CO1	PO1 PO3	PSO2 PSO4
Q.3	i.	What is RDBMS?	2	BL1	CO2	PO1	PSO2 PSO4
	ii.	Write a query to find all the employees whose salary is between 50000 to 100000.	2	BL2	CO2	PO1 PO5	PSO2 PSO4
	iii.	Write the commands for DDL and DML. Explain with a suitable example.	8	BL3	CO2	PO1 PO2	PSO2 PSO4
OR	iv.	Explain JOIN and its types with example.	8	BL3	CO2	PO1 PO2 PO5	PSO2 PSO4

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Total No. of Questions: 3

MEDI-CAPS UNIVERSITY
Knowledge is Power

Enrollment No...EN22CS301719

Faculty of Engineering / Science

Mid Sem-I Examination February-2024

CS3CO37 / BC3CO63 Advanced Java Programming

Programme: B.Tech (CS) / B. Sc. **Branch/Specialization:** CSE

Duration: 1.5 Hrs. **Maximum Marks: 30**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	CO	PO	PSO
Q.1	i.	In Which Version of Java Collection Framework is introduced? a) jdk1.0 b) jdk1.2 c) jdk1.4 d) jdk1.5	1	BL1	CO1	PO1	
	ii.	What is the purpose of using wildcard in java? a) It restricts methods to accept only primitive types. b) It specifies return types. c) It represents an unknown type d) It allows method to accept arguments of any type.	1	BL1	CO1	PO1	
	iii.	What is the main purpose of using Generic in java? a) To eliminate type safe collection &eliminate type casting b) To increase program execution speed c) To simplifies the syntax of java code d) To improve memory management	1	BL1	CO1	PO1	
	iv.	The servlet context object is _____ a) One for each servlet b) One for Whole application c) One for each session d) None of these	1	BL1	CO2	PO1	

v.	A _____ is known as deployment descriptor file for Servlet a) web.xml b) pom.xml c) config d) None of these	1	BL1	CO2	PO1
vi.	Servlet are used to program which component in a web application? a) client b) server c) tomcat d) applet	1	BL1	CO2	PO1
Q.2	i. Explain Generic function.	2	BL1	CO1	PO1
	ii. What do you mean by Wildcards? Explain any one type with program.	3			
	iii. Explain Collection framework Hierarchy.	7	BL1	CO1	PO1
OR	iv. Explain List Interface with program Using LinkedList class methods Implement following:- a) Stack b) Queue	7	BL3	CO1	PO2
Q.3	i. Explain Client Server Architecture.	2	BL1	CO2	PO1
	Attempt any two:				
	ii. What do you understand by servlet Listners and servlet filters?	5	BL2	CO2	PO1
	iii. Using Servlet design a user login registration form of taking username and password.	5	BL3	CO2	PO2
	iv. Explain following(any 2) a) GET and Post Methods b) MVC Design Pattern c) Inter Servlet Communication	5	BL2	CO2	PO2

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Total No. of Questions: 3

Enrollment No.....EN22CS301719

Faculty of Engineering

Mid Sem-II Examination April-2024

CS3EW04 Internet and Web Technology-IV

Programme: B.Tech Branch/Specialization: CSE All

Duration: 1.5 Hrs. **Maximum Marks: 30**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

				BL	CO	PO	PSO
Q.1	i.	XML is designed to ____ and ____ data. a) Design, style b) Design, send c) Store, style d) Store, transport	1	BL_{02}	CO_{03}	PO_{02}, PO_{03}, PO_{05}	
	ii.	A Document Type Definition (DTD) is a set of ___ which is used to define the type of document for SGML-family markup language. a) Markup definition b) Markup document c) Main declarations d) Markup declarations	1	BL_{01}	CO_{03}	PO_{02}, PO_{03}, PO_{05}	
	iii.	What is the correct syntax to link XML file with CSS? a) <?xml type="text/css" href="file.css"?> b) <?xml type="text/css" src="file.css"?> c) <?xml-stylesheet type="text/css" href="file.css"?> d) <?xml-stylesheet type="text/css" src="file.css"?>	1	BL_{01}	CO_{03}	PO_{02}, PO_{03}, PO_{05}	
	iv.	What will be the output of the following PHP program. <?php $a = 100; if ($a > 10) echo "PHP 1"; else if ($a > 20) echo "PHP 2"; else if ($a > 30) echo "PHP 3"; ?>	1	BL_{04}	CO_{04}	PO_{08}, PO_{09}, PO_{10}	

a) PHP 0
b) PHP 1
c) PHP 2
d) PHP 3

v. Which is the correct way to define a variable in PHP? 1 BL01 CO01 PO01, PO06, PO10
   a) Variable name as value;
   b) $Variable_name = Value
   c) $Variable_name = Value;
   d) All are correct.

vi. Which is the correct order of servlet life cycle methods. 1 BL02 CO03 PO06, PO09, PO10
   a) init(), service(), destroy()
   b) initialize(), service(), destroy()
   c) init(), execute(), destroy()
   d) init(), service(), delete()

Q.2 i. Define CDATA and PCDATA? 2 BL01 CO03 PO02, PO03, PO05

ii. What is XML? How it is different from HTML? 4 BL01 CO03 PO02, PO03, PO05

iii. What do you mean by XSD? List out the advantages of XSD over DTD. 6 BL01 CO03 PO02, PO03, P05

OR iv. Explain the significance of XSLT. How it can be used to transform XML document into another XML document using XSLT? Explain with an example. 6 BL03 CO03 PO02, PO03, PO05

Q.3 i. What is an API and why we use it? 2 BL02 CO04 PO08, PO09, PO10

ii. What is Recursive function? Explain the significance of recursive function in PHP with example. 4 BL03 CO04 PO08, PO09, PO10

iii. Why we use arrays in PHP? Explain different types of arrays with the help of an example. 6 BL02 CO04 PO08, PO09, PO10

OR iv. Define Servlet. Explain the basic servlet structure and its life cycle methods. 6 BL02 CO04 PO08, PO09, PO10

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Total No. of Questions: 3

Enrollment No. EN22CS301719

MEDI-CAPS UNIVERSITY
Knowledge is Power

Faculty of Engineering

Mid Sem-II Examination April-2024

CS3CO37 Advanced Java Programming

Programme: B.Tech. Branch/Specialization: CSE All

Duration: 1.5 Hrs. **Maximum Marks: 30**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

				BL	CO	PO	PSO
Q.1	i.	Which directives specify an HTTP response that will be of type "img/svg"? a) <%@ page type="img/svg" %> b) <%@ page mimeType="img/svg" %> c) <%@ page language="img/svg" %> d) <%@ page contentType="img/svg" %>	1	BL_{01}	CO_{03}	PO_{01}	
	ii.	Which are valid Jsp implicit variables? a) stream b) context c) exception d) listner	1	BL_{01}	CO_{03}	PO_{01}	

	iii.	Given a request with two parameters: one named "first" represents a user's first name and another named "last" represents his last name.
		Which JSP scriptlet code outputs these parameter values?
		a) <%out.println(request.getParameter("first"));
		out.println(request.getParameter("last"));%>
		b) <%out.println(application.getInitParameter("first"));
		out.println(application.getInitParameter("last"));
		%>
		c) <%println(request.getParameter("first"));
		println(request.getParameter("last"));%>
		d) <%out.println(application.getInitParameter("first"));
		out.println(application.getInitParameter("last"));
		%>
			1	BL_{02}	CO_{03}	PO_{01}	

	iv.	What is the purpose of the Spring IoC Container? a) To mange the lifecycle of beans and their dependencies b) To handle the Configuration of the application c) To provide caching mechanism for the application d) To provide security mechanism for the application	1	BL_{01}	CO_{04}	PO_{01}	

	v.	What are two ways to achieve dependency injection in spring? a) Using getter and setter methods b) Using setter and constructor c) Using getter and constructor d) Using setter and factory methods	1	BL_{01}	CO_{04}	PO_{01}
	vi.	Beans defined in Spring framework are by default: a) Abstract b) Singleton c) Final d) global	1	BL_{01}	CO_{04}	PO_{01}
Q.2	i.	What is JSP and what are the advantages over Servlet?	2	BL_{01}	CO_{03}	PO_{01}
	ii.	Explain JSP lifecycle.	3	BL_{02}	CO_{03}	PO_{01}, PO_{02}
	iii.	What are different types of JSP tags?	7	BL_{02}	CO_{03}	PO_{01}
OR	iv.	Write a program to store value from jsp page to database.	7	BL_{03}	CO_{03}	PO_{01}, PO_{02}
Q.3	i.	What is Spring Framework?	2	BL_{01}	CO_{04}	PO_{01}
		Attempt any two:				
	ii.	What do you mean by POJO programming model?	5	BL_{02}	CO_{04}	PO_{01}, PO_{02}
	iii.	Explain Spring IOC Container.	5	BL_{02}	CO_{04}	PO_{01}, PO_{02}
	iv.	How MVC architecture is used in Spring framework?	5	BL_{02}	CO_{04}	PO_{01}, PO_{02}

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Total No. of Questions: 3

Enrollment No. EN22CS3017,9

Faculty of Engineering

Mid Sem-II Examination April-2024

CS3CO36 Operating System

Programme: B.Tech — Branch/Specialization: CSE All

Duration: 1.5 Hrs. — **Maximum Marks: 30**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

				BL	CO	PO	PSO
Q.1	i.	A computer has 1000K of main memory. The jobs arrive and finish in the following sequence. Job 1 requiring 200 K arrives Job 2 requiring 350 K arrives Job 3 requiring 300 K arrives Job 1 finishes Job 4 requiring 120 K arrives Job 5 requiring 150 K arrives Job 6 requiring 80 K arrives Among best fit and first fit, which performs better for this sequence? a) First fit b) Best fit c) Both perform the same d) None of the above	1	BL.03	CO03	PO01	
	ii.	When memory is divided into several fixed sized partitions, each partition may contain __ a) exactly one process b) at least one process c) multiple processes at once d) None of the mentioned	1	BL.03	CO03	PO01	
	iii.	In multiprogramming with fixed partitions, if a process requires more memory than is available in a partition, it may lead to: a) Fragmentation b) Deadlock c) Priority inversion d) Starvation	1	BL.03	CO03	PO02	

iv. FIFO policy is used in a system for page replacement. It consists of 4-page frames, and no pages loaded, to start with. This system initially accesses 100 separate pages in a particular order. It then accesses these same 100 pages. The difference is that now they are in the reverse order. Considering this, how many page faults would occur here? **1** BL.03 CO04 PO03

a) 192 b) 195
c) 196 d) 197

v. Consider a system that has 4K pages of 512 bytes in size in the logical address space. The number of bits of logical address? **1** BL.03 CO04 PO02

a) 21 b) 20
c) 19 d) 17

vi. What is Thrashing? **1** BL.03 CO04 PO03

a) A high paging activity is called thrashing.
b) A high executing activity is called thrashing
c) An extremely long process is called thrashing
d) A extremely long virtual memory is called thrashing

Q.2 i. What is the difference between contiguous and non- contiguous memory management techniques? **2** BL.03 CO03 PO01

ii. Compare and contrast the paging with segmentation. In particular, describe issues related to fragmentation. **4** BL.03 CO03 PO01

iii. Consider a logical address space of 8 pages of 1024 addressable words each mapped onto a physical memory of 32 frames. How many bits are there in the logical address? How many bits are there in physical address? **6** BL.03 CO03 PO01

OR iv. Consider six memory partitions of sizes 200 KB, 400 KB, 600 KB, 500 KB, 300 KB and 250 KB, where KB refers to kilobyte. These partitions need to be allotted to four processes of sizes 357 KB, 210 KB, 468 KB and 491 KB in that order. If best fit, worst fit and next fit is used, which partitions are NOT allotted to any process? **6** BL.03 CO03 PO01

Q.3	i.	Explain the concept of demand paging and page fault.	2	BL03	CO04	PO03
	ii.	Write a short note on: Cache memory.	2	BL03	CO04	PO03
	iii.	Consider the following reference string: 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. How many page faults would occur for the following algorithms, assuming three, five and six frames? (i) LRU Replacement (ii) Optimal Replacement Remember all frames are initially empty, so first unique pages will all cost one fault each.	8	BL03	CO04	PO03
OR	iv.	For the page reference string as 0, 2, 4, 2, 1, 9, 4, 3, 5, 7, 4, 5, 7, 8, 6, 3, 0, 2, 1 and with 3 memory frames, calculate the number of page faults using: (i) OPT (ii) FIFO Page Replacement algorithms. Compare the result obtained from both the algorithms.	8	BL03	CO04	PO03

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Total No. of Questions: 3

Enrollment No. EN22CS301219

Faculty of Engineering

Mid Sem-II Examination April 2024

CS3CO39 Database Management Systems

Programme: B.Tech. *Branch/Specialization: CSE All*

Duration: 1.5 Hrs. **Maximum Marks: 30**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

				BL	CO	PO	PSO
Q.1	i.	A table is in BCNF if it is in 3NF and if every determinant is a _____ key. a) Dependent b) Normal c) Candidate d) Both Normal and Candidate	1	BL_{01}	CO_{01}	PO_{01}	PSO_{01} PSO_{02}
	ii.	Functional Dependencies are the types of constraints that are based on_____ a) Key b) Key revisited c) Superset key d) None of the mentioned	1	BL_{01}	CO_{01}	PO_{02}	PSO_{02}
	iii.	A table is in 3NF if it is in 2NF and if it has no _____ a) Functional Dependencies b) Transitive Dependencies c) Trivial Functional Dependency d) Multivalued Dependencies	1	BL_{01}	CO_{01}	PO_{01}	PSO_{03}
	iv.	In order to maintain the consistency during transactions, database provides a) Commit b) Atomic c) Flashback d) Retain	1	BL_{02}	CO_{04}	PO_{02}	PSO_{02} PSO_{04}
	v.	Which of the following makes the transaction permanent in the database? a) View b) Commit c) Rollback d) Flashback	1	BL_{01}	CO_{04}	PO_{01}	PSO_{04}

	vi.	Transaction processing is associated with everything below except a) Conforming an action or triggering a response b) Producing detail summary or exception report c) Recording a business activity d) Maintaining a data	1	BL-	CO-	PO-	PSO-; PSO-
Q.2	i.	Explain the following keys with example. a) Candidate key b) Foreign key.	2	BL-;	CO-	PO-	PSO-; PSO-
	ii.	What is functional dependency? Explain its use in database design.	3	BL-;	CO-	PO-	PSO-; PSO-
	iii.	Explain 3NF and 2NF with example?	7	BL-	CO-	PO-	PSO-; PSO-
OR	iv.	Find all the candidate key and super key of the following- A)R(A,B,C,D,E,F) and FD={AB→C,C→DE,E→F, D→A,C→B}	7	BL-	CO-	PO-	PSO-; PSO-
Q.3	i.	Define Transaction processing?	3	BL-	CO-	PO-; PO-;	PSO-; PSO-
	ii.	Draw a transition state diagram and describe each state that a transaction goes through during its execution.	4	BL-;	CO-	PO-; PO-;	PSO-; PSO- 4
	iii.	What is locking protocol? Explain recoverability and serializability?	5	BL-	CO-	PO-	PSO-; PSO-
OR	iv.	Explain the different types of failure in DBMS.	5	BL-	CO-	PO-; PO-;	PSO-; PSO-

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