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Department of Information Technology

Continuous Internal Evaluation - II

Subject: Computer Algorithm

Class: TY **Year: 2022-23** **Sem: I**

Date: 02/12/2022 **Time: 3.30 pm - 4.30 pm** **Max Marks: 30**

Q.1	**Solve following MCQs (1 Mark Each)**	**CO**
i.	Kruskal's algorithm is used to _____ A) find minimum spanning tree B) find single source shortest path C) find all pair shortest path algorithm D) traverse the graph	2
ii.	The worst case complexity of quick sort is _____ A) O(n) B) O(log n) C) O(n2) D) O(n log n)	1
iii.	Which of the following problems is NOT solved using dynamic programming? A) 0/1 knapsack problem B) Matrix chain multiplication problem C) Edit distance problem D) Fractional knapsack problem	3
iv.	Which of the following standard algorithms is not Dynamic Programming based. A) Bellman–Ford Algorithm for single source shortest path B) Floyd Warshall Algorithm for all pairs shortest paths C) 0-1 Knapsack problem D) Prim's Minimum Spanning Tree	2
v.	A complete graph can have..... A) n^2 spanning trees B) n^(n-2) spanning trees C) n^(n+1) spanning trees D) n^n spanning trees	1
vi.	When dynamic programming is applied to a problem, it takes far less time as compared to other methods that don't take advantage of overlapping sub problems. A) True B) False	1
Q.2	**Attempt any 3 (8 Marks Each)**	

1.	Explain recursive algorithm for finding the maximum and minimum from given array with example. What is its complexity?	2
2.	What is the solution generated by greedy solution job sequencing with deadline problem. When n=5,(P1,P2,P3,P4,P5)=(20,15,10,5,1) and (d1,d2,d3,d4,d5)=(2,2,1,3,3) ?	1
3.	Solve the following instances of knapsack problem using greedy approach. n=6,m=20, ,(P1,P2,P3,P4,P5,P6)=(12,5,15,7,618), (w1,w2,w3,w4,w5,w6)=(2,3,5,7,1,5).	2
4.	Explain dynamic programming solution to multistage graph problem with suitable example.	4

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Class: TY **Year: 2022-23** **Sem: I** **Subject: Database Engineering**

Date: 02/12/2022 **Time: 12.30 to 1.30 PM** **Max Marks: 30**

Q1	Solve following MCQs (1 Mark Each)	CO
i.	by including integrity constraints in existing relations we use? a)update table b)alert table c)delete table d)create table	1
ii.	CREATE TABLE course (. . . FOREIGN KEY (dept name) REFERENCES department . . .); The following code is used. a)delete b)delete tuple c)delete cascade d)none of these	1
iii.	Which of the following is not Armstrong's Axiom? a) Reflexivity rule b) Transitivity rule c) Pseudotransitivity rule d) Augmentation rule	1
iv.	There are two functional dependencies with the same set of attributes on the left side of the arrow: A->BC A->B This can be combined as a) A->BC b) A->B c) B->C d) None of the mentioned	2
v.	Consider a relation R(A,B,C,D,E) with the following functional dependencies: ABC -> DE and D -> AB The number of superkeys of R is: a) 2 b) 7	2

	c) 10 d) 12	
vi.	Which of the following is a physical storage media? a) Tape Storage b) Optical Storage c) Flash memory d) All of the mentioned	2
Q2	Attempt any 3 (8 Marks Each)	
	i. What is functional dependency? Explain different properties of functional dependency with an example	1
	ii. Solve the FD A) Find the closer of R(ABCD) B) FD={A → B, B → C, C → D} C) Find the canonical cover in the given Functional Dependency D) FD={AB → C, C → AB , B → C, ABC → AC, A → C, AC → B }	2
	iii. What is normalization? Explain different normal forms with an example	2
	iv. What is physical storage media? Explain different types of data storage	2

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Class: TY Div: - Year: 2022-23 Sem: I Subject: HCI (Open Elective)

Date: 03-12-22 Time: 9.30-am -10.30am Max Marks: 30

Q1	Solve following MCQs (1 Mark Each)	CO
vii.	Selection controls include…. A) Radio buttons, check boxes B) List boxes, drop-down C) Pop-up list boxes and palettes D) All the above	4
viii.	When a button leads to a cascading dialog, include an ….. after the label. A) ellipsis (...) B) triangle pointing. C) double arrow (>>) D) single arrow (->)	3
ix.	Use ……..windows to extend the interaction. A) Primary B) Secondary C) Multiple D) None	4
x.	A lever that can be moved in several directions to control the movement of an image in……. A) Trackball B) Joystick C) Mouse ball D) None	3
xi.	A window can be split into two or more separate viewing areas that are called …... . A) Planes B) Panes C) Plans D) Pans	4
vi.	We use ……. windows for Single-task activities. A) Tiled B) Cascading C) Overlapping D) None	3
Q2	Attempt any 3 (8 Marks Each)	
	i. List out and explain various Direct and Indirect methods for Business definition and requirements analysis.	3
	ii. Which are the visually pleasing composition qualities required in user interface design.	3
	iii. What are different operable controls? Explain each one in brief.	4
	iv. List down advantages and disadvantages of the following devices to communicate user interface design: Keyboard, Light pen, Touch screen and Voice	4

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Continuous Internal Evaluation - II

Class: TY **Year: 2022-23** **Sem: I** **Subject: Operating System- II**

Date: 02/12/2022 **Time: 10 am to 11 am** **Max Marks: 30**

Q1	Solve following MCQs (1 Mark Each)	CO
i.	What is true about thread? a) Thread switching does not need to interact with operating system. b) All threads can share same set of open files, child processes. c) Multiple threaded processes use fewer resources. d) All of the above	1
ii.	Which one of the following is the deadlock avoidance algorithm? a) banker's algorithm b) round-robin algorithm c) elevator algorithm d) karn's algorithm	5
iii.	For an effective operating system, when to check for deadlock? a) every time a resource request is made b) at fixed time intervals c) every time a resource request is made at fixed time intervals d) none of the mention	1
iv.	Which one of the following is a visual (mathematical) way to determine the deadlock occurrence? a) resource allocation graph b) starvation graph c) inversion graph d) none of the mentioned	4
v.	The circular wait condition can be prevented by _____ a) defining a linear ordering of resource types b) using thread c) using pipes d) all of the mentioned	3
vi.	To recover from failures in the network operations _____ information may be maintained. a) operating system b) ip address	2

	c) stateless d) state	
Q2.	Attempt any 3 (8 Marks Each)	
	i. Write a note on Inter-process communication with diagram.	2
	ii. Write a note on Multithreading models and benefits of multithreaded programming.	3
	iii. Explain Banker's Algorithm with example.	4
	iv. Write a note on Resource Allocation Graph.	5

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Continuous Internal Evaluation - II

Subject: System Programming

Class: TY **Year: 2022-23** **Sem: I**

Date: 03/12/2022 **Time: 12.30 pm - 1.30 pm** **Max Marks: 30**

Q.1	Solve following MCQs (1 Mark Each)	CO
xii.	A macro definition consists of a) A macro prototype statement b) One or more model statements c) Macro pre-processor statements d) All of the above	1
xiii.	…….. Is a program which can perform the relocation of its own address sensitive instructions. a) A program b) Non relocatable program c) Relocatable program d) Self relocating program	1
xiv.	A macro within a macro is called a) macro-within-macro b) nested macro c) macro-in-macro d) none of the mentioned	4
xv.	…….. Is the process of binding an external reference to the correct link time address. a) Allocation b) Relocation c) Linking d) Loading	3
xvi.	……. Is the process of modifying the addresses used in the address sensitive instructions of a program, such that the program can execute correctly from the designated area of memory.	2

	a) Program linking b) Program relocation c) Loading d) None of these	
xvii.	The flow control during macro expansion is a) combination b) chronological c) indexable d) sequential	4
Q.2	**Attempt any 3 (8 Marks Each)**	
	i. State and explain various advanced macro facilities with an example each.	1
	ii. Explain relocation algorithm in detail.	2
	iii. Discuss in detail with diagram the design of a macro preprocessor.	3
	iv. Explain program execution in detail with the help of diagram.	4