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CMRIT
CMR INSTITUTE OF TECHNOLOGY, BENGALURU.
ACCREDITED WITH A+ GRADE BY NAAC

Internal Assessment Test III – November 2019

Sub:	Advanced Computer Architecture					Sub Code:	15CS72	Branch:	CSE		
Date:	18/11/2019	Duration:	90 min's	Max Marks:	50	Sem / Sec:	7th-A,B,C			OBE	

Answer any FIVE FULL Questions

		MARKS	CO	RBT
1 (a)	Explain multiply pipeline design to multiply two 8-bit integers.	(06)	CO2	L2
1 (b)	Explain the concept of Hazard Avoidance.	(04)	CO3	L1
2 (a)	What is Arbitration? Explain different types of arbitration.	(08)	CO3	L2
2(b)	Explain the concept of Store and Forward routing.	(02)	CO3	L2
3 (a)	For the reservation table of nonlinear pipeline shown below.	(08)	CO3	L3

	1	2	3	4	5	6
S1	X					X
S2		X			X	
S3			X			
S4				X		
S5		X				X

a) What are forbidden latencies? Write initial collision vector. b) Draw the state transition diagram
c) List all the simple cycles and greedy cycles. d) Determine MAL

		MARKS	CO	RBT
3 (b)	Define following terms 1. Latency Cycle 2. Greedy Cycle	(02)	CO3	L1

		MARKS	CO	RBT
4 (a)	Explain any two Context Switching policies.	(02)	CO4	L2
4 (b)	Explain the sequential and weak consistency model with a neat diagram.	(08)	CO3	L2
5 (a)	With a neat diagram explain the architecture of connection machine CM2.	(10)	CO4	L2
6 (a)	What are the implementation models of SIMD? Explain in detail	(10)	CO4	L2
7 (a)	Explain the Concurrent OOP, Actor Model and Parallelism in COOP.	(10)	CO5	L2
8 (a)	Explain different phases of the parallelizing compiler with a neat diagram.	(06)	CO5	L2
8 (b)	Explain the concept of Full Map Directories with neat diagram for Directory based protocol.	(04)	CO4	L2

CO PO Mapping

Course Outcomes		Modules covered	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO1	Explain different computer architecture and concepts of parallelism	1,4,5	3	1	1	-	-	1	-	-	-	-	-	-	-	2	-	-
CO2	Compare major processor families and pipeline implementations.	2,3	3	1	1	-	-	1	-	-	-	-	-	-	-	2	-	-
CO3	Describe the hardware technologies of computer system along with complete understanding of the memory and memory hierarchy.	2,3	3	1	1	-	-	1	-	-	-	-	-	-	-	2	-	-
CO4	Explain the concepts of parallel and scalable architecture.	1,4	3	1	1	-	-	1	-	-	-	-	-	-	-	2	-	-
CO5	Describe about parallel programming models, languages, compilers and Instruction and System Level parallelism	1,5	3	1	1	-	-	1	-	-	-	-	-	-	-	2	-	-

COGNITIVE LEVEL	REVISED BLOOMS TAXONOMY KEYWORDS
L1	List, define, tell, describe, identify, show, label, collect, examine, tabulate, quote, name, who, when, where, etc.
L2	summarize, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend
L3	Apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, experiment, discover.
L4	Analyze, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer.
L5	Assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, discriminate, support, conclude, compare, summarize.

PROGRAM OUTCOMES (PO), PROGRAM SPECIFIC OUTCOMES (PSO)				CORRELATION LEVELS	
PO1	Engineering knowledge	PO7	Environment and sustainability	0	No Correlation
PO2	Problem analysis	PO8	Ethics	1	Slight/Low
PO3	Design/development of solutions	PO9	Individual and team work	2	Moderate/ Medium
PO4	Conduct investigations of complex problems	PO10	Communication	3	Substantial/ High
PO5	Modern tool usage	PO11	Project management and finance		
PO6	The Engineer and society	PO12	Life-long learning		
PSO1	Develop applications using different stacks of web and programming technologies				
PSO2	Design and develop secure, parallel, distributed, networked, and digital systems				
PSO3	Apply software engineering methods to design, develop, test and manage software systems.				
PSO4	Develop intelligent applications for business and industry				