CSSE 332 – Operating Systems Rose-Hulman Institute of Technology Computer Science and Software Engineering Department Page Table Structure C

Name:	D
Namo:	Rov.
TVALUE.	DUX

(3 points) Consider a single level paging system with a fully associative translation look-aside buffer (TLB). Assume that frames are 1024 Bytes.

Virtual Address		Main	Memory		Tì	LB
Page # Offset	Addresss	Valid	Frame		Page	Frame
Tage # Office	riadresss	bit	Number		#	#
	0	1	104		16	848
	1	1	334		53	100
	2	0	45		4	324
	3	1	891		80	226
	4	1	115		5	900
			• • •	I		000
	256	0	333			
	257	0	228			
	258	0	610	•		
	259	0	200			
	260	1	324			
	261	1	900			
	262	1	1005			
	263	0	820			
	264	1	20			al Address
	265	0	5		Frame	# Offset
	266	0	1005			,
	267	0	220			
	268	1	4			
	269	1	303			
	270	1	689			
	271	0	446			
Page Table Ptr	272	1	848			
256	273	0	666			
	274	1	111			
	275	1	229			

Register
Interrupt Indicator

For	each of the following virtual addresses,	determine whether	or not tl	here is a 7	TLB hit,	if
not e	determine if a page fault occurs, and if	a page fault does no	t occur,	translate t	the virtu	ıal
addı	ress to a physical address.					

• •
1. $4 105$
2. 18 640
3. 16 105
(2 points) Consider a TLB which holds n items. Express your answers in big-O notation.
4. What is the lookup time for the TLB?
5. What is the primary disadvantage of a TLB?

(8 points) Complete the following summary table.

	Advantages	Disadvantages
Single level		
page table		
(T) . 11		
Two level		
page table		
Inverted page		
table with		
hashing		
Translation		
look-aside		
buffer		