Department of Electrical Engineering and Computing

Computing Security

CSEC 202 Reverse Engineering Fundamentals

Quiz #1

(22 Minutes)

Name	ID

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Spring 2024
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Sections: CSEC202.602
Instructor: Emad AbuKhousa

Exam Instructions: Complete All Questions (Total: 10 Points)

Points Equally Distributed.

1. **Which of the following is a common challenge when reverse engineering a complex binary?**
   A) Translating the binary directly into high-level language constructs without any loss of information.
   B) Identifying and understanding the proprietary algorithms used within the binary.
   C) Enhancing the graphical user interface of the software being reverse-engineered.
   D) Converting assembly code back into the original high-level source code.

2. **What is the correct sequence of phases in the gcc compilation system?**
   A) Compiler, Preprocessor, Assembler, Linker
   B) Preprocessor, Compiler, Assembler, Linker
   C) Linker, Assembler, Compiler, Preprocessor
   D) Assembler, Linker, Preprocessor, Compiler

3. **What part of the CPU is designed to store small amounts of data for quick access?**
   A) Main memory
   B) Cache
   C) Registers
   D) Disk storage

4. **What does the assembly instruction MOV EAX, DWORD PTR [A] perform in x86 32-bit architecture?**

   A) Moves the value from the memory address labeled "A" into the 64-bit accumulator register.

   B) Moves the value from the memory address labeled "A" into the 32-bit accumulator register.

   C) Stores the value from the 32-bit accumulator register into the memory address labeled "A".

   D) Performs a bitwise AND operation between the value at the memory address labeled "A" and the 32-bit accumulator register.

5. **What is the main advantage of the simpler hardware design in RISC architecture?**
   A) More complex algorithms can be implemented
   B) Potentially more efficient use of the silicon area
   C) More cycles per instruction are possible
   D) Variable-length instructions can be executed

6. **What happens during the 'Operate' step of CPU operations?**
   A) The CPU turns off unnecessary functions to save energy.
   B) The ALU performs arithmetic or logical operations and stores the results in a register.
   C) The CPU requests data from the internet.
   D) Peripheral devices are checked for input.

7. **After executing the following instructions, what will be the state of the Zero Flag (ZF) when the comparison happens?**

```
MOV EAX, 5
CMP EAX, 5
JE Label
```

   A) The ZF will be set (ZF = 1) because EAX is not equal to 5.
   B) The ZF will be cleared (ZF = 0) because EAX is equal to 5.
   C) The ZF will be set (ZF = 1) because EAX is equal to 5.
   D) The ZF state is unpredictable.

8. **What is the function of the EBP register?**
   A) To point to the top of the stack.
   B) To serve as the base pointer for stack frames.
   C) To act as a data register.
   D) To function as a source index.

9. **What does ISA stand for in computer architecture?**
   A) Integrated System Architecture.
   B) Instruction Set Architecture.
   C) Internal Software Application.
   D) Intelligent Service Algorithm.

10. **Which CPU instruction is an example of an operation dictated by the ISA?**
   A) ADD EAX, EBX
   B) CREATE TABLE Users
   C) HTTP GET /index.html
   D) BOOTSTRAP SYSTEM

Bonus Question: [1 Point]

Note: This bonus point applies solely to this exam and cannot be transferred to other assignments or exams.

1. **Using the attached ASCII table, what is the correct hexadecimal representation of the string "Hello, World"?**

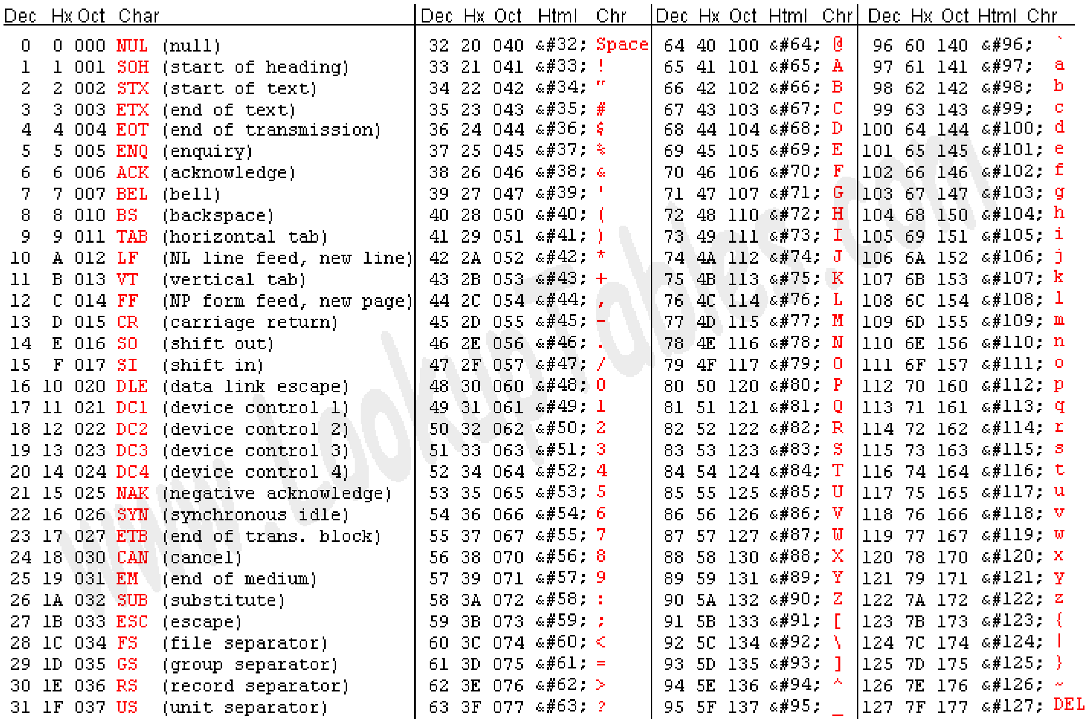
   A) 48 61 6C 6C 6F 2C 20 57 6F 72 6C 64

   B) 48 65 6C 6F 2C 20 57 6F 72 6C 64

   C) 48 65 6C 6C 6F 2C 20 57 6F 72 6C 64

   D) 4F 65 6C 6C 6F 2D 21 57 6F 72 6C 64

Good Luck



Dec	Hx	Oct	Char		Dec	Hx	Oct	Html	Chr	Dec	Hx	Oct	Html	Chr	Dec	Hx	Oct	Html	Chr
0	0	000	NUL	(null)	32	20	040	&#32;	Space	64	40	100	&#64;	@	96	60	140	&#96;	`
1	1	001	SOH	(start of heading)	33	21	041	&#33;	!	65	41	101	&#65;	A	97	61	141	&#97;	a
2	2	002	STX	(start of text)	34	22	042	&#34;	"	66	42	102	&#66;	B	98	62	142	&#98;	b
3	3	003	ETX	(end of text)	35	23	043	&#35;	#	67	43	103	&#67;	C	99	63	143	&#99;	c
4	4	004	EOT	(end of transmission)	36	24	044	&#36;	$	68	44	104	&#68;	D	100	64	144	&#100;	d
5	5	005	ENQ	(enquiry)	37	25	045	&#37;	%	69	45	105	&#69;	E	101	65	145	&#101;	e
6	6	006	ACK	(acknowledge)	38	26	046	&#38;	&	70	46	106	&#70;	F	102	66	146	&#102;	f
7	7	007	BEL	(bell)	39	27	047	&#39;	'	71	47	107	&#71;	G	103	67	147	&#103;	g
8	8	010	BS	(backspace)	40	28	050	&#40;	(	72	48	110	&#72;	H	104	68	150	&#104;	h
9	9	011	TAB	(horizontal tab)	41	29	051	&#41;	)	73	49	111	&#73;	I	105	69	151	&#105;	i
10	A	012	LF	(NL line feed, new line)	42	2A	052	&#42;	*	74	4A	112	&#74;	J	106	6A	152	&#106;	j
11	B	013	VT	(vertical tab)	43	2B	053	&#43;	+	75	4B	113	&#75;	K	107	6B	153	&#107;	k
12	C	014	FF	(NP form feed, new page)	44	2C	054	&#44;	,	76	4C	114	&#76;	L	108	6C	154	&#108;	l
13	D	015	CR	(carriage return)	45	2D	055	&#45;	-	77	4D	115	&#77;	M	109	6D	155	&#109;	m
14	E	016	SO	(shift out)	46	2E	056	&#46;	.	78	4E	116	&#78;	N	110	6E	156	&#110;	n
15	F	017	SI	(shift in)	47	2F	057	&#47;	/	79	4F	117	&#79;	O	111	6F	157	&#111;	o
16	10	020	DLE	(data link escape)	48	30	060	&#48;	0	80	50	120	&#80;	P	112	70	160	&#112;	p
17	11	021	DC1	(device control 1)	49	31	061	&#49;	1	81	51	121	&#81;	Q	113	71	161	&#113;	q
18	12	022	DC2	(device control 2)	50	32	062	&#50;	2	82	52	122	&#82;	R	114	72	162	&#114;	r
19	13	023	DC3	(device control 3)	51	33	063	&#51;	3	83	53	123	&#83;	S	115	73	163	&#115;	s
20	14	024	DC4	(device control 4)	52	34	064	4	4	84	54	124	&#84;	T	116	74	164	&#116;	t
21	15	025	NAK	(negative acknowledge)	53	35	065	&#53;	5	85	55	125	&#85;	U	117	75	165	&#117;	u
22	16	026	SYN	(synchronous idle)	54	36	066	&#54;	6	86	56	126	&#86;	V	118	76	166	&#118;	v
23	17	027	ETB	(end of trans. block)	55	37	067	&#55;	7	87	57	127	&#87;	W	119	77	167	&#119;	w
24	18	030	CAN	(cancel)	56	38	070	&#56;	8	88	58	130	&#88;	X	120	78	170	&#120;	x
25	19	031	EM	(end of medium)	57	39	071	&#57;	9	89	59	131	&#89;	Y	121	79	171	&#121;	y
26	1A	032	SUB	(substitute)	58	3A	072	&#58;	:	90	5A	132	&#90;	Z	122	7A	172	&#122;	z
27	1B	033	ESC	(escape)	59	3B	073	&#59;	;	91	5B	133	&#91;	[	123	7B	173	&#123;	{
28	1C	034	FS	(file separator)	60	3C	074	&#60;	<	92	5C	134	&#92;	\	124	7C	174	&#124;	|
29	1D	035	GS	(group separator)	61	3D	075	&#61;	=	93	5D	135	&#93;	]	125	7D	175	&#125;	}
30	1E	036	RS	(record separator)	62	3E	076	&#62;	>	94	5E	136	&#94;	^	126	7E	176	&#126;	~
31	1F	037	US	(unit separator)	63	3F	077	&#63;	?	95	5F	137	&#95;	_	127	7F	177	&#127;	DEL

Source: www.LookupTables.com