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Started on	
State	
Completed on	
Time taken	
Marks	
Grade	
Feedback	

You are a highly motivated student, who takes full responsibility for your learning. A reflective learner, who recognises areas for development and is committed to personal improvement. An organised learner who always completes class work and homework to a very high standard.

Question 1

Correct

Marks 1.00 out of 1.00

Which of the following statements is true if the data for an instruction is too large to fit in the immediate operand?

- ☐ a. Immediate addressing mode can be used for the instruction.
- ☐ b. The data pertaining to the instruction will be stored in the operand, with excess bits being ignored
- ☐ c. The instruction cannot be modified to use a different format that can accommodate larger data.
- ☒ d. Alternative addressing modes such as direct or indirect addressing may need to be used. ✓

Your answer is correct.

The correct answer is:
Alternative addressing modes such as direct or indirect addressing may need to be used.

Response history

Step	Time	Action	State	Marks
1	17/05/23, 12:22	Started	Not yet answered	
2	17/05/23, 13:02	Saved: Alternative addressing modes such as direct or indirect addressing may need to be used.	Answer saved	
3	17/05/23, 13:02	Attempt finished	Correct	1.00

Question **2**

Correct

Mark 1.00 out of 1.00

Which statement accurately describes addressing modes?

- ☐ a. Direct mode addressing is comparatively faster than immediate mode addressing.
- ☒ b. In immediate mode addressing, the operand is part of the instruction. ✓
- ☐ c. Immediate mode addressing is also known as indirect mode addressing.
- ☐ d. In direct mode addressing, the operand is part of the instruction.

Your answer is correct.

The correct answer is:

In immediate mode addressing, the operand is part of the instruction.

Response history

Step	Time	Action	State	Marks
1	17/05/23, 12:22	Started	Not yet answered	
2	17/05/23, 12:28	Saved: In immediate mode addressing, the operand is part of the instruction.	Answer saved	
3	17/05/23, 13:02	Attempt finished	Correct	1.00

Question 3

Correct

Mark 1.00 out of 1.00

Which of the following "contains a copy of the instruction being executed"?

- ☐ a. Accumulator
- ☒ b. Instruction register ✓
- ☐ c. Program counter
- ☐ d. Status Bit Z
- ☐ e. Status Bit N

Your answer is correct.

The correct answer is:
Instruction register

Response history

Step	Time	Action	State	Marks
1	17/05/23, 12:22	Started	Not yet answered	
2	17/05/23, 12:29	Saved: Instruction register	Answer saved	
3	17/05/23, 13:02	Attempt finished	Correct	1.00

Question 4

Correct

Mark 4.00 out of 4.00

You are given the following ASCII table and the following set of sample Pep8 instructions. Use this information to answer this question.

Opcode	Meaning of Instruction
0000	Stop execution
1100	Load the operand into the A register
1110	Store the contents of the A register into operand
0111	Add the operand to the A register
1000	Subtract the operand from the A register
01001	Character input to the operand
01010	Character output from the operand

What is the output of the following Pep8 program?

```
50 00 41 50 00 62 50 00 6A 50 00 65 50 00 63 50 00 74 zz
```

You may use the below ASCII table to help you work out the answer:

ASCII TABLE

Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char
0	0	[NULL]	32	20	[SPACE]	64	40	@	96	60	`
1	1	[START OF HEADING]	33	21	!	65	41	A	97	61	a
2	2	[START OF TEXT]	34	22	"	66	42	B	98	62	b
3	3	[END OF TEXT]	35	23	#	67	43	C	99	63	c
4	4	[END OF TRANSMISSION]	36	24	\$	68	44	D	100	64	d
5	5	[ENQUIRY]	37	25	%	69	45	E	101	65	e
6	6	[ACKNOWLEDGE]	38	26	&	70	46	F	102	66	f
7	7	[BELL]	39	27	'	71	47	G	103	67	g
8	8	[BACKSPACE]	40	28	(	72	48	H	104	68	h
9	9	[HORIZONTAL TAB]	41	29	)	73	49	I	105	69	i
10	A	[LINE FEED]	42	2A	*	74	4A	J	106	6A	j
11	B	[VERTICAL TAB]	43	2B	+	75	4B	K	107	6B	k
12	C	[FORM FEED]	44	2C	,	76	4C	L	108	6C	l
13	D	[CARRIAGE RETURN]	45	2D	-	77	4D	M	109	6D	m
14	E	[SHIFT OUT]	46	2E	.	78	4E	N	110	6E	n
15	F	[SHIFT IN]	47	2F	/	79	4F	O	111	6F	o
16	10	[DATA LINK ESCAPE]	48	30	0	80	50	P	112	70	p
17	11	[DEVICE CONTROL 1]	49	31	1	81	51	Q	113	71	q
18	12	[DEVICE CONTROL 2]	50	32	2	82	52	R	114	72	r
19	13	[DEVICE CONTROL 3]	51	33	3	83	53	S	115	73	s
20	14	[DEVICE CONTROL 4]	52	34	4	84	54	T	116	74	t
21	15	[NEGATIVE ACKNOWLEDGE]	53	35	5	85	55	U	117	75	u
22	16	[SYNCHRONOUS IDLE]	54	36	6	86	56	V	118	76	v
23	17	[END OF TRANS. BLOCK]	55	37	7	87	57	W	119	77	w
24	18	[CANCEL]	56	38	8	88	58	X	120	78	x
25	19	[END OF MEDIUM]	57	39	9	89	59	Y	121	79	y
26	1A	[SUBSTITUTE]	58	3A	:	90	5A	Z	122	7A	z
27	1B	[ESCAPE]	59	3B	;	91	5B	[	123	7B	{
28	1C	[FILE SEPARATOR]	60	3C	<	92	5C	\	124	7C	|
29	1D	[GROUP SEPARATOR]	61	3D	=	93	5D	]	125	7D	}
30	1E	[RECORD SEPARATOR]	62	3E	>	94	5E	^	126	7E	~
31	1F	[UNIT SEPARATOR]	63	3F	?	95	5F	_	127	7F	[DEL]

Answer: 

The correct answer is: Abject

response history

Step	Time	Action	State	Marks
1	17/05/23, 12:22	Started	Not yet answered	
2	17/05/23, 12:34	Saved: Abject	Answer saved	
3	17/05/23, 13:02	Attempt finished	Correct	4.00

Question **5**

Correct

Mark 2.00 out of 2.00

Which of the following best describes the purpose of an assembler?

- ☐ a. It converts high-level languages into assembler code.
- ☐ b. It converts machine language to assembly language.
- ☐ c. It is not used in modern-day computers.
- ☒ d. It converts assembly language to machine language. ✓

Your answer is correct.

The correct answer is:

It converts assembly language to machine language.

response history

Step	Time	Action	State	Marks
1	17/05/23, 12:22	Started	Not yet answered	
2	17/05/23, 12:34	Saved: It converts assembly language to machine language.	Answer saved	
3	17/05/23, 13:02	Attempt finished	Correct	2.00

Question 6

Correct

Mark 1.00 out of 1.00

Which of the following best describes the purpose of the register specifier?

- ☐ a. Indicates how to interpret the operand part of the instruction
- ☐ b. Contains the address of the next instruction to be executed
- ☐ c. Specifies which instruction is to be carried out
- ☐ d. Contains a copy of the instruction being executed
- ☒ e. Specifies which register is to be used ✓

Your answer is correct.

The correct answer is:

Specifies which register is to be used

Response history

Step	Time	Action	State	Marks
1	17/05/23, 12:22	Started	Not yet answered	
2	17/05/23, 12:36	Saved: Specifies which register is to be used	Answer saved	
3	17/05/23, 13:02	Attempt finished	Correct	1.00

Question **7**

Correct

Marks 1.00 out of 1.00

What is the 16-bit address of the data that this instruction is pointing to?

49003F

Hint: Just provide the address in binary, no spaces. Remember to include exactly the number of bits required.

Answer:

✓

The correct answer is: 0000000000111111

Response history

Step	Time	Action	State	Marks
1	17/05/23, 12:22	Started	Not yet answered	
2	17/05/23, 12:53	Saved: 0000000000111111	Answer saved	
3	17/05/23, 13:02	Attempt finished	Correct	1.00

Question 8

Correct

Marks 1.00 out of 1.00

How can the Instruction Format in machine language be broken down, and what are the two components?

Select one:

- ☒ a. Instruction specifier and operation specifier✔
- ☐ b. Addressing mode and operation code
- ☐ c. Instruction specifier and register specifier
- ☐ d. Instruction operation and operation code

Your answer is correct.

The correct answer is: Instruction specifier and operation specifier

Response history

Step	Time	Action	State	Marks
1	17/05/23, 12:22	Started	Not yet answered	
2	17/05/23, 12:40	Saved: Instruction specifier and operation specifier	Answer saved	
3	17/05/23, 13:02	Attempt finished	Correct	1.00

Question 9

Correct

Mark 8.00 out of 8.00

Pretend to be a processor with a 16-bit A-register; 8-bit instruction specifier; and 16-bit operand specifier.

Consider the set of machine language instructions below:

49002F
490031
510031
51002F
00

(a) Convert each instruction into binary (no spaces).

49002F
0100100100000000010111

✓

490031
01001001000000000110001

✓

510031
01010001000000000110001

✓

51002F
0101000100000000010111

✓

00
00000000

✓

(b) What type of addressing is used in each instruction?

49002F	Direct-mode addressing	✓
490031	Direct-mode addressing	✓
510031	Direct-mode addressing	✓
51002F	Direct-mode addressing	✓

00

(c) What will be the output if you read in XY?

YX

✓

OPCODE	Meaning of Instruction
0000	STOP execution
1100	LOAD the operand into the A-register
1110	STORE the A-register into the operand
0111	ADD the operand to the A-register
1000	SUBTRACT the operand from the A-register
01001	Character INPUT to the operand
01010	Character OUTPUT from the operand
00110	Decimal INPUT to the operand
00111	Decimal OUTPUT from the operand

response history

Step	Time	Action	State	Marks
1	17/05/23, 12:22	Started	Not yet answered	
2	17/05/23, 13:01	Saved: part 1: 01001001000000000101111; part 2: 01001001000000000110001; part 3: 01010001000000000110001; part 4: 01010001000000000101111; part 5: 00000000; part 6: Direct-mode addressing; part 7: Direct-mode addressing; part 8: Direct-mode addressing; part 9: Direct-mode addressing; part 10: YX	Answer saved	
3	17/05/23, 13:02	Attempt finished	Correct	8.00

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