اسم الطالب: وقم القيد:				
Group: Control	Midterm I	Date: 28 / 11 / 2018		
Important Notes:				
 Attempt ALL questions Total time allowed ON Total Marks: 30 				
Q.1 Multiple Choice Questions	(MCQ): (10 Marks)			
 To access a memory of size 8 data / 8 address lines. (8 data / 10 address lines. () c. 10 data /	d address lines are 10 address lines.() 16 address lines.()		
		Instructions. $(\sqrt{})$		
3. In microcomputer systems, ja. Digital input devices. (b. Analog input devices. (c. Digital or	utput devices. () utput devices. ()		
4. After reading an instructiona. program counter. (b. instruction register.	from ROM it is saved tem) c. top of sta $()$ d. any GPR	ck. ()		
5. ATmega328 bandwidth is a. 4-bits (b. 8-bits () c. 16-bits d. 32-bits	()		
simultaneously	outer can access data) b. False.	and program memories $(\sqrt{\ })$		
7. TinyAVR microcontrollers of a. True.	can process complex data b. False.	such as audio and video. $(\sqrt{})$		
8. To restart ATmega328, pin and an arrange.	#1 must be connected to g b. False.	round.		
9. EEPROM of ATmega328 is a. True. (1KB volatile memory.) b. False.	()		
10. T bit of status register is sea. True.	et when the result is positive.	ve.		

رقم القيد:	إسم الطالب:
------------	-------------

Q.2 Write short hands on the following: (4 Marks)

a) Assembly language statement format. b) The purpose of instruction decoder.

Q.3 Briefly explain the difference between the following: (4 Marks)

- a) Direct versus indirect addressing modes.
- b) Static versus dynamic RAM.

Q.4 Referring to ATmega328 instruction set, what errors are in the following? Write the correct form. (6 Marks)

a) PUSH R17, 17

c) TST R20, 0x5A

b) **LDI R0, R8**

d) LDS R17, 0xFF

No.	Error	Reason	Correction
a	operand #2 (17)	This instruction takes	PUSH R17
		only one operand.	
b	Both operands.	LDI works with registers	MOV R0, R8
		R16 to R31. It loads	or
		immediate value to a	LDI R18, 0x8
		register. MOV transfer	
		data between registers.	
c	0x5A	Instruction TST takes	TST R20
		only one operand.	
d		LDS loads direct from	LDS R17, 0xFF
	0xFF	given address of a static	
		RAM which starts from	
		address 0x100.	

End of questions Good luck!

Examiner: Eng. Abdulbaset Ashour