AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING

Computer and Systems Engineering Department
Specialized Programs
Junior Electrical Engineering, Electronics and Communications Engineering
Junior Electrical Engineering, Computer and Systems Engineering

Quiz 1

Questions' bank

WHICH INSTRUCTION WILL BE USED?
ASSUME WE WANT TO MOVE AN IMMEDIATE 32-BIT NUMBER (0X22222222) INTO R1.

A) LDR R1, =0x22222222

B) LDR R1, #0x22222222

C) MOV R1, =0x22222222

D) None of the other answers

ANSWER: A

ASSUMING A = 0X41221234, B = 0X41221234, AND C = 0, WHAT IS THE VALUE OF C AFTER EXECUTING THE FOLLOWING CODE?

```
LDR R0, =A
LDR R1, [R0]
LDR R0, =B
LDRH R2, [R0]
CMP R1, R2
BNE  else_label
LDR R3, =0x2222
B store_c
else_label
LDR R3, =0x1111
```

store_c STR R3, =C

A) This code will not be assembled

B) 0x1111

C) 0x2222

D) 0

E) None of the other answers

ANSWER: B

ASSUMING A NEGATIVE LOGIC LED IS CONNECTED TO PORT A PIN 2, WHAT IS THE C STATEMENT USED TO TURN ON THE LED?

A) GPIO_PORTA_DATA_R &= ~0x04

B) GPIO_PORTA_DATA_R &= 0x04

C) GPIO_PORTA_DATA_R |= 0x04

D) GPIO_PORTA_DATA_R ^= 0x04

ANSWER: A

ASSUMING R0 IS EQUAL TO 0X10020345 AND THE INSTRUCTION

BIC R0, R0, #0X20030100 IS EXECUTED, WHAT IS THE VALUE OF R0?

A) 0x10000245

B) 0x00000045

C) 0x10020345

D) 0x20030100

E) None of the other answers

ANSWER: A

ASSUMING SP = 0X20000200, WHAT IS THE VALUE OF SP AFTER THE INSTRUCTION PUSH {R0-R2}?

A) 0x200001F4

B) 0x2000020C

C) 0x200001FD

D) 0x20000203

ANSWER: A

ASSUMING THE TOP 3 VALUES OF THE STACK IN ORDER ARE 3, 4, AND 5 WHAT IS THE VALUE OF REGISTER R0 AFTER THE INSTRUCTION POP {R0-R2}?

A) 3

B) 4

C) 5

D) None of the other answers

ANSWER: A

WHAT IS CONTENTS OF R1 IN THE BELOW INSTRUCTION?

ASSUME R2= 0X00001234.

MOV R1, R2, LSL #4

A) R1= 0x00012340

B) R1 = 0x00000123

C) R1= 0x00123400

D) None of the other answers.

ANSWER: A

WHAT IS THE ACTUAL/FINAL ADDRESS THAT WILL BE USED TO ACCESS THE MEMORY (EFFECTIVE ADDRESS) AFTER EXECUTING THE FOLLOWING INSTRUCTION? ASSUME R5 CONTAINS 0X18.

STR R4, [R5, #4]

A) EA= 0x1C

B) EA= 0x20

C) EA= 0x38

D) None of other answers

ANSWER: A

WHAT IS THE ADDRESSING MODE USED IN BELOW INSTRUCTION?

LDR R0, =1234567

A) PC relative Addressing Mode

B) Indexed Addressing with Immediate Offset

C) Immediate Addressing

D) Indexed Addressing

E) None of the other answers

ANSWER: A

WHAT IS THE EXPECTED RESULT OF X AFTER CALLING FUNC1 FUNCTIONS?

```
void Func1(int num) {      num=num+100;   }
 int main() {      int x=1;
Func1(x);
return 0; }
```

A) 1

B) 101

C) 99

D) 100

E) None of the other answers

ANSWER: A

WHAT IS CONTENTS OF R1 IN THE BELOW INSTRUCTION? ASSUME R2= 0X00001234.

MOV R1, R2, LSR #4

A) R1 = 0x00000123

B) R1= 0x00012340

C) R1= 0x00123400

D) None of the other answers

ANSWER: A

WHAT IS THE ACTUAL/FINAL ADDRESS THAT WILL BE USED TO ACCESS THE MEMORY (EFFECTIVE ADDRESS) AFTER EXECUTING THE FOLLOWING INSTRUCTION? ASSUME R5 CONTAINS 0X18.

STR R4, [R5, #8]

A) EA=0x20

B) EA=0x1C

C) EA=0x38

D) None of the other answers

ANSWER: A

WHAT IS THE EXPECTED RESULT OF X AFTER CALLING FUNC1 FUNCTIONS?

```
void Func1(int num) {
        num=num+100;        }
int main() {
 int x=10;
Func1(x);
 return 0;       }
```

A) 10

B) 110

C) 90

D) 100

E) None of the other answers

ANSWER: A

HOW MANY REGISTERS DO THE ARM CORTEX-M PROCESSORS HAVE?

A) 16

B) 13

C) 15

D) 10

E) None of the other answers

ANSWER: A

THE PULL-UP RESISTORS IN THE BELOW CODE ARE ENABLED FOR

LDR R1, =GPIO_PORTF_PUR_R

MOV R0, #0x11

STR R0, [R1]

A) PF0, PF4

B) PF0, PF1, PF2, PF3

C) PF0, PF3

D) PF2, PF3

E) None of the other answers

ANSWER: A

WHAT DOES THIS CODE DO?

```
LDR     R1, =GPIO_PORTF_DATA_R
LDR     R0, [R1]
```

AND R0, R0, #0x11

A) Reading data of pins 0 and 4 of port F

B) Reading data of pins 1 and 4 of port F

C) Reading data of pins 1, 2 , 3, 5, 6 and 7 of port F

D) None of the other answers

ANSWER: A

WHAT DOES UINT16_T REPRESENT IN C?

A) signed four-byte integer

B) None of other answers

C) signed two-byte integer

D) unsigned two-byte integer

E) unsigned four-byte integer

ANSWER: D

WHAT IS THE ADDRESSING MODE USED IN BELOW INSTRUCTION?

BL func

A) PC relative Addressing Mode

B) Immediate Addressing

C) Indexed Addressing with Immediate Offset

D) Indexed Addressing

E) None of the other answers

ANSWER: A

WHAT IS THE EXPECTED VALUE OF X AFTER THE EXECUTION OF THE PROGRAM?

void MUL(int *Y) { *Y=*Y*100; }

```
int main() {
int x=2;
MUL(&x);
printf("%d ", x);
return 0;      }
```

A) 100

B) 200

C) 2

D) 100

E) None of the other answers

ANSWER: B

WHAT IS THE PURPOSE OF THE C FLAG IN THE PSR OF CORTEX-M PROCESSORS?

A) The C flag is set in case of an unsigned overflow

B) The C flag is set if the result of the operation is less than zero

C) The C flag is set if the result of the operation is zero

D) None of the other answers

ANSWER: A

WHICH C STATEMENT IS USED TO CLEAR PINS 1, 2, 3 OF PORT F WITHOUT AFFECTING THE REST OF PINS?

A) GPIO_PORTF_DATA_R &= ~0x0E;

B) GPIO_PORTF_DATA_R |= ~0x0E;

C) GPIO_PORTF_DATA_R = ~0x0E;

D) GPIO_PORTF_DATA_R ^= ~0x0E;

E) None of the other answers

ANSWER: A

WHICH C STATEMENT IS USED TO TURN ON A RED LED THAT IS CONNECTED TO PF1 WITHOUT AFFECTING THE REST OF PINS?

A) GPIO_PORTF_DATA_R |=0x02 ;

B) GPIO_PORTF_DATA_R &=0x02 ;

C) GPIO_PORTF_DATA_R ^=0x02 ;

D) None of the other answers

E) GPIO_PORTF_DATA_R =0x02 ;

ANSWER: A

WHICH OF THE FOLLOWING IS WORD-ALIGNED ADDRESS?

A) 0x80000004

B) 0x80000001

C) 0x80000003

D) None of the other answers

ANSWER: A

WHICH REGISTER IS USED TO ENABLE DIGITAL I/O ON A PIN?

A) DEN

B) AMSEL

C) AFSEL

D) PCTL

ANSWER: A