Embedded Systems Revision

1- In Tm4c123 Tiva C board, switches are connected to _____, ___and are ____ logic respectively

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a-PF1,PF4, Positive
                              b- PF2,PF3, Negative c- PF0,PF4, Negative
2- In a microprocessor, the register which holds the address of the next instruction to be fetched is ...
                        b- R15
                                         c-R14
      a-R12
3- the stack is used for . .
A: Storing the program return address whenever a sub-routine jump instruction is executed.
B: Transmitting and receiving input-output data.
C: Storing all important CPU register contents whenever an interrupt is to be serviced.
D: Storing program instructions for interrupt service routines.
4- most of Tm4c123 register are ____ width
      a-32-bit
                        b-16-bit
                                           c- 8-bit
5- PSR register can monitor ____
      a-zero status b- overflow status
                                           c-carry status d- all of previous
6-word-aligned mean that ___ must be zero .
      a-Most significant bit b-two least significant bit c-least significant bit
7- UART in Tm4c123 is ____
      a- Half-Duplex
                             b-Full-Duplex
                                                      c- Simplex
8- Usually frame of UART used is
      a- start bit, data bits, parity bit
      b-start bit, data bits, 2stop bits
      c- start bit, data bits, 1 stop bit
9- UART is
      a- Universal Analog Receiver Transmitter
                                                 b- Universal Synchronous Receiver-Transmitter
                  c- Parallel Communication
                                                 d- None of previous
10- which of following shows that system clock has been enabled for Port F
      a- GPIO_PORTF_DIR_R =0x01
      b-GPIO PORTF DEN R=0x01
      c-SYSCTL_RCGCGPIO_R=0x20
      d-SYSCTL PRGPIO R=0x20
11- the following part of Embedded C code has an error in its sequence of execution, what is the right
sequence (neglect clock enable status checking)
                                          // Enable PF1 and PF4 as a digital GPIO pins
   GPIO PORTF DEN R = 0 \times 12;
   GPIO_PORTF_CR_R = 0 \times 01;
                                             // Enable GPIOPUR register enable to commit
   SYSCTL_RCGCGPIO_R |= 0×20;
                                          /* enable clock to GPIOF */
                                         // unlockGPIOCR register
   GPIO PORTF LOCK R = 0x4C4F434B;
   GPIO PORTF PUR R = 0 \times 10;
                                           // Enable Pull Up resistor PF4
                                          //set PF1 as an output and PF4 as an input pin
   GPIO PORTF DIR R = 0 \times 02;
      a- 3,4,1,5,2,6 b- 3,4,2,5,6,1 c- 5,4,1,6,2,3 d-2,3,4,1,5,6
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12- Which of the following is the correct instruction for toggling bit 3 of port A data register?
a- GPIO_PORTA_DATA_R |= 0x08
b- GPIO PORTA DATA R &= ~0x08
c- GPIO_PORTA_DATA_R ^= 0x08
13- which statement is used to clear pins 1,2,3 of port F without affecting rest of pins
a- GPIO PORTA DATA R &= ~0x0E
b-GPIO PORTA DATA R = -0x0E
c- GPIO PORTA DATA R ^= ~0x0E
d- GPIO_PORTA_DATA_R &= 0x0E
14- assuming Baud rate =115200, what is the value of UARTIBRD and UARTFBRD respectively (using
SysClk =16Mhz)
      a-104,11
                         b-11,104
                                             c-44,8
                                                                d-8,44
15- where are local variables stored in memory?
                         b-RAM
      a- ROM
                                             c- Stack
                                                                d- none of previous
16- Assuming 9600 Baud Rate, what's time required to transmit "System Error" via UART using 1stop-bit
                         b-15ms
      a-10ms
                                             c-12.5ms
                                                                d-11.25ms
17- for previous problem, if Baud Rate modified to be 115200, time required will decrease by ____
                         b- 57%
                                             c-17.5%
                                                                d- 91.6%
      a- 8.6%
18- which of the following can be used as UART Rx &Tx
                         b-PA0,PA1
                                             c-PD2,PD3
                                                                D-PE2,PE3
      a- PA3,PA4
19-assuming an integer variable "Z"=(53)<sub>10</sub>, how to clear bit 4, what the new value in Hex?
      a-z&=(1<<4)....(16)_{16}
      b- z = (1 << 4) \dots (12)_{16}
      c- z\&=\sim(1>>4) ....(37)<sub>16</sub>
      d-z\&=\sim(1<<4).....(25)_{16}
For the following program, when you run it there
                                                     int main()
                                                     {
                                                          SYSCTL RCGCGPIO R=0x02;
20- the error is
```

is an error

a-clock if enabled for different port

b- PA1,PA2,PA3 are not set as output

c- port F is locked

d-port F is Unlocked

21- suppose that error has been fixed, what the out put if Switch 2 pressed ..

a-LED is Green

b-LED is Red

c-Led is Blue

d- LED is OFF

22- if GPIO_PORTF_DIR_R modified to be 0x11 , then we pressed Switch 2 again

a-LED is Green

b-LED is Red

c-Led is Blue

d- LED is OFF

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while ((SYSCTL_PRGPIO_R&0x02)==0){};
         GPIO_PORTF_CR_R = 0 \times 0 E;
         GPIO_PORTF_DIR_R = 0 \times 0 E;
         GPIO PORTF DEN R = 0 \times 0 E;
         while(1)
             SW1 = GPIO_PORTF_DATA_R\&0\times10;
11
             SW2 = GPIO_PORTF_DATA_R&0x01;
             if (!SW1 && !SW2) {
12 -
13
                  GPIO_PORTF_DATA_R = 0x04;
14
             else if (!SW1) {
                  GPIO PORTF DATA R = 0 \times 02;
15
16 -
             else if (!SW2) {
17
                  GPIO PORTF_DATA_R = 0 \times 08;}
             else {
18 -
19
                  GPIO_PORTF_DATA_R = 0 \times 00;
20
21 }
```

23- what happens if the receiving computer is operating on a baud rate that is twice as fast as the transmitting computer? a- The receiver could appear to get TWO input frames for every one frame transmitted. b- The receiver could appear to get ONE input frames for every one frame transmitted. c- The receiver could appear to get 4 input frames for every one frame transmitted. d- the receiver will not accept the data 24 - The reset value for UARTO FR R is a- 0x00 b-0x09 c-0x90 d-0xFF 25 – The reset value for UARTO CTL R is a-0x0000 b-0x0001 c-0x0030 d-0x0300 26 – while receiving data from external device, Device's transmitting rate was higher than UART baud rate causing FIFO data loss, how can we found that using UART registers? a- UARTRSR =0x01 b- UARTRSR = 0x02c- UARTRSR=0x08 27 – while transmitting and receiving using FIFO enabled, the Data Register holds ... bits in Receiving and use ... bits in Transmitting, respectively a-16,12 b-12,8 c-8, 12 d-12, 10 int UART Init() while trying to Initialize UART0 in Tiva C board, this code { doesn't run correctly SYSCTL_RCGCGPIO_R =0x001; 28 – which lines do you think are the error? SYSCTL RCGCUART R =0x001; a- 1.2. b-9.10 c-6.7 UARTO CTL R = 0×000 ; 29 – for the 1st line you found what is the correct value UARTO_IBRD_R =104; b-0x000 UARTO_FBRD_R =11 ; a- 0x010 c-0x301 UARTO CC R= 0; 30- if line 8 was modified to be (0x5), will line 6,7 be affected UARTO CTL $R = 0 \times 0300$; a- True b- False UARTO CRH R = 0×000 ; GPIO PORTA AMSEL R &= ~0x003; 11 31 – for the 2nd line you found what is the correct value GPIO PORTA AFSEL R $= 0 \times 003$; 12 a- 0x010 b-0x000 c-0x301 GPIO PORTA DEN R $= 0 \times 003$; 13 14 32-what does this statement do to output character through UARTO? while((UARTO FR R & 0×0020) != 0); a- Check if the buffer is full b- Check if the buffer is not empty c- Check if the buffer is empty d- None of the other answers 33-what does this statement do to output character through UARTO? while((UART0 FR R & 0x0040) != 0); a- DATA R is Empty b- DATA_R is Full c- DATA_R has new data received d- b&c 34- giving that Stepper motor runs at 400step/rotation what is required delay between every step to achieve 30 rpm? b-10ms c-7.5ms d-5ms a-5s 35- if you're using (Systick wait 5us()) for delay and want to achieve 50 RPM using 60 step/rotation how many times will you execute for loop? a-40 b- 4 c- 4000 d-3

Answers

- 1. C
- 2. B
- 3. A
- 4. A
- 5. D
- 6. B
- 7. B
- 8. C
- 9. D
- 10. D
- 11. B
- 12. C
- 13. A
- 14. D
- 15. C
- 16. C
- 17. D
- 17. D
- 18. B
- 19. D
- 20. C
- 21. A
- 22. D
- 23. A
- 24. C
- 25. D
- 26. C
- 20.
- 27. B
- 28. B
- 29. C
- 30. A
- 31. A
- 32. A
- 33. D
- 34. D
- 35. C