

University of Mumbai
Examination 2020

Program: Information Technology
Curriculum Scheme: 2016

Examination: TE

Semester: V

Course Code: ITC501

Course Name: : Micro-controller & Embedded programming

Time: 2 hour

Max. Marks: 80

Q1. Choose the correct option for following questions.

All the Questions are compulsory and carry equal marks

Q1. Which is an example of an Embedded System_____

- A. Tablets
- B. PCs
- C. Laptops
- D. Washing Machine

Q2. Both the CISC and RISC architectures have been developed to reduce the _____

- A. Time Delay
- B. Cost
- C. Semantic gap
- D. Reduced Code

Q3. Which interrupt has lowest priority in 8051?

- A. TF0
- B. TF1
- C. INT1
- D. TI/RI

Q4. IE register of 8051 bit size is__

- A. 12 bits
- B. 16 bits

- C. 4 bits
- D. 8-bits

Q5. Start bit in Serial communication is always__

- A. High
- B. Low
- C. high and low
- D. low and high

Q6. Which instruction will give error while executing__?

- A. MOV A,RO
- B. MOV RO,A
- C. MOV R1,R3
- D. MOV R6,#25

Q7. What is SFR address of B register of 8051

- A. E0H
- B. A0H
- C. F0H
- D. C0H

Q8. In ADC chip0804 chip consist of how many pins

- A. 16
- B. 20
- C. 18
- D. 40

Q9. How many digital input pins present in 0808 chip

- A. 4
- B. 8
- C. 16
- D. 32

Q10. Unipolar stepper motor works in _____-

- A. 2 modes
- B. 3 modes
- C. 4 modes
- D. 6 modes

Q11. LCD 16x2 how many characters display per line

- A. 16
- B. 2
- C. 4
- D. 32

Q12. LCD pin 15 function is _____

- A. To power the backlight +5V
- B. backlight GND
- C. LCD enable
- D. RW

Q13. Which one is NOT the feature of RISC system?

- A. Pipelining
- B. HLL support
- C. Score boarding
- D. data bus

Q14. Which among the following data processing instructions does not use the Barrel shifter?

- A. ADD R2, R5, R4
- B. MOV R5, R4, LSL #2
- C. MOV r5, R4, LSR #2
- D. MOV r5, R4, ROR #2

Q15. Time required to synchronous switch from the context of one thread to the context of another thread is called.

- A. threads fly-back time
- B. jitter
- C. context switch time
- D. deadlock

Q16. Real time systems must have _____

- A. pre-emptive kernels
- B. non pre-emptive kernels
- C. pre-emptive kernels or non-pre-emptive kernels
- D. neither pre-emptive nor non pre-emptive kernels

Q17. The scheduler admits a process using _____

- A. two phase locking protocol
- B. admission control algorithm
- C. busy wait polling
- D. polling only

Q18. What is a reusable resource?

- A. that can be used by one process at a time and is not depleted by that use
- B. that can be used by more than one process at a time
- C. that can be shared between various threads
- D. when another process is in its critical section

Q19. A program written with the IDE for Arduino is called

- A. IDE source
- B. Sketch
- C. Cryptography
- D. Source code

Q20. How many USB ports are present in Raspberry Pi 3?

- A. 5
- B. 4
- C. 3
- D. 2

Q2. Solve any Two Questions out of Three

10 marks each

- A. Draw and explain interrupt structure of 8051
- B. Explain various addressing modes of ARM7 with example
- C. Describe priority inversion problem and discuss how to resolve it

Q3. Solve any Two Questions out of Three

10 marks each

- A. Compare features of Arduino board and Raspberry Pi board
- B. Discuss core elements of embedded system and compare microprocessor and micro-controller
- C. Write an assembly language program for 8051 to generate square of 2 KHz at pin P2.5

Assume crystal frequency=11.0592MHz and use Timer-0, Mode -0.