



## BRAINWARE UNIVERSITY

**Term End Examination 2021 - 22**

**Programme – Bachelor of Technology in Electronics & Communication Engineering**

**Course Name – Embedded System**

**Course Code - PEC-ECEL801A**

**( Semester VIII )**

**Time allotted : 1 Hrs.25 Min.**

**Full Marks : 70**

[The figure in the margin indicates full marks.]

### Group-A

(Multiple Choice Type Question)

1 x 70=70

*Choose the correct alternative from the following :*

- (1) A microcontroller at-least should consist of:
 

a) RAM, ROM, I/O devices, serial and parallel ports and timers	b) b.CPU, RAM, I/O devices, serial and parallel ports and timers
c) CPU, RAM, ROM, I/O devices, serial and parallel ports and timers	d) . CPU, ROM, I/O devices and timers
- (2) Unlike microprocessors, microcontrollers make use of batteries because they have:
 

a) high power dissipation	b) low power consumption
c) low voltage consumption	d) low current consumption
- (3) How are microcontrollers classified on the basis of internal bus width?
 

a) 8,16,32,64 bits	b) 4,8,16,32 bits
c) 32,64 bits	d) 4,8,,32 bits
- (4) RISC & CISC meaning.....
 

a) a. Complete Instruction Set Computer, Reduced Instruction Set Computer	b) b. Complex Instruction Set Computer, Reduced Instruction Set Computer
c) c. Complex Instruction Set Computer, Reliable Instruction Set Computer	d) d. Complete Instruction Set Computer, Reliable Instruction Set Computer
- (5) Give the names of the buses present in a controller for transferring data from one place to another?
 

a) a. data bus, address bus	b) b. data bus
c) c. data bus, address bus, control bus	d) d. address bus
- (6) What is the most appropriate criterion for choosing the right microcontroller of our choice?
 

a) speed	b) . velocity
c) searching	d) availability
- (7) Why microcontrollers are not called general purpose devices?
 

a) a. because they are based on VLSI technology	b) b. because they are not meant to do a single work at a time
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- c) c. because they are cheap  
d) d. because they consume low power
- (8) Which transducer is known as ‘self-generating transducer’  
a) Active transducer  
b) Passive transducer  
c) Secondary transducer  
d) Analog transducer
- (9) Which of the following can be measured using Piezo-electric transducer  
a) Velocity  
b) Displacement  
c) Force  
d) Sound
- (10) Which architecture involves both the volatile and the non volatile memory?  
a) a. Harvard architecture  
b) b. Von Neumann architecture  
c) c. None of the mentioned  
d) d. All of the mentioned
- (11) Value of temperature coefficient of Strain gauge is  
a) low  
b) High  
c) zero  
d) infinite
- (12) Strain gauge works on the principle of  
a) piezo-electric effect  
b) piezo- resistive effect  
c) barkhausen criterion  
d) feedback element effect
- (13) Which microcontroller doesn’t match with its architecture below?  
a) a. Microchip PIC- Harvard  
b) b. MSP430- Harvard  
c) c. ARM7- Von Neumann  
d) d. ARM9- Harvard
- (14) Harvard architecture allows:  
a) a. separate program and data memory  
b) b. pipe-ling  
c) c. complex architecture  
d) d. all of the mentioned
- (15) A Wheatstone bridge has  
a) low sensitivity  
b) zero sensitivity  
c) high sensitivity  
d) infinite sensitivity
- (16) Why most of the DSPs use Harvard architecture?  
a) a. they provide greater bandwidth  
b) b. they provide more predictable bandwidth  
c) c. they provide greater bandwidth & also more predictable bandwidth  
d) d. none of the mentioned
- (17) Which of the following supports CISC as well as Harvard architecture?  
a) a. ARM7  
b) b. Pentium  
c) c. SHARC  
d) d. All of the mentioned
- (18) 8085 microprocessor has how many pins  
a) 40  
b) 42  
c) 46  
d) 49
- (19) 8051 has how many pins  
a) 50  
b) 60  
c) 40  
d) 80
- (20) On subtracting  $(01010)_2$  from  $(11110)_2$  using 1’s complement, we get  
a) 1001  
b) 11010  
c) 10101  
d) 10100
- (21) On subtracting  $(001100)_2$  from  $(101001)_2$  using 2’s complement, we get  
a) 1101100  
b) 11101  
c) 11010101  
d) 11010111
- (22) 1’s complement can be easily obtained by using

- a) Comparator                      b) Inverter  
c) Adder                                d) Subtractor
- (23) The number 140 in octal is equivalent to?  
a) (90)<sub>10</sub>                                b) (88)<sub>10</sub>  
c) (86)<sub>10</sub>                                d) (96)<sub>10</sub>
- (24) The universal gate is \_\_\_\_\_.  
a) NAND gate                            b) OR gate  
c) NOT gate                              d) AND gate
- (25) Which De Morgan's theorem states that the complement of a sum is equal to the product of complements?  
a)  $AB = A + B$                             b)  $(A+B)' = A' \cdot B'$   
c)  $A+B = A \cdot B$                             d)  $A'B' = A' + B'$
- (26) The largest two digit hexadecimal number is  
a) (FE)<sub>16</sub>                                  b) (FD)<sub>16</sub>  
c) (FF)<sub>16</sub>                                  d) (EF)<sub>16</sub>
- (27) The decimal number 10 is represented in its BCD form as  
a) 10100000                              b) 1010111  
c) 10000                                  d) 101011
- (28) Storage of 1KB means the following number of bytes  
a) 1000                                    b) 964  
c) 1024                                    d) 1064
- (29) What is the octa equivalent of the binary number: 10111101  
a) 675                                      b) 275  
c) 572                                      d) 573
- (30) Most of the digital computers do not have floating point hardware because  
a) floating point hardware is costly                                    b) It is slower than software  
c) It is not possible to perform floating point addition by hardware                                    d) No specific reason
- (31) The number of Boolean functions that can be generated by n variables is equal to  
a) 2n                                        b) 2<sup>2n</sup>  
c) 2<sup>n-1</sup>                                        d) -2n
- (32) Which of the following gate is a two-level logic gate  
a) OR gate                                 b) NAND gate  
c) EX-OR gate                             d) NOT gate
- (33) An AND gate will function as OR if  
a) All the inputs to the gates are "1"                                    b) All the inputs are "0"  
c) Either of the inputs is "1"    d) All the inputs and outputs are complemented
- (34) What is the frequency of the clock that is being used as the clock source for the timer  
a) some externally applied frequency                                    b) controller's crystal frequency  
c) controller's crystal frequency /12                                      d) externally applied frequency/12
- (35) What is the function of the TMOD register  
a) TMOD register is used to set different timer's or counter's to their appropriate modes                                    b) TMOD register is used to load the count of the timer  
c) Is the destination or the final register where the result is obtained after the operation of the timer                                    d) Is used to interrupt the timer
- (36) What steps are followed when we need to turn on any timer

- a) load the count, start the timer, keep monitoring it, stop the timer  
 b) load the TMOD register, load the count, start the timer, keep monitoring it, stop the timer
- c) load the TMOD register, start the timer, load the count, keep monitoring it, stop the timer  
 d) none of the mentioned
- (37) Which one of the following offers CPUs as integrated memory or peripheral interfaces
- a) Microcontroller  
 b) Microprocessor  
 c) Embedded system  
 d) Memory system
- (38) Which of the following offers external chips for memory and peripheral interface circuits
- a) Microcontroller  
 b) Microprocessor  
 c) Peripheral system  
 d) Embedded system
- (39) Which one of the following is board based system
- a) Data bus  
 b) Address bus  
 c) VMEbus  
 d) DMA bus
- (40) VME bus stands for
- a) Versa module Europa bus  
 b) Versa module embedded bus  
 c) Vertical module embedded bus  
 d) Vertical module Europa bus
- (41) It retains its content when power is removed. What type of memory is this
- a) Volatile memory  
 b) Nonvolatile memory  
 c) RAM  
 d) SRAM
- (42) Name a volatile memory
- a) RAM  
 b) EPROM  
 c) ROM  
 d) EEPROM
- (43) What kind of socket does an external EPROM to plugged in for prototyping
- a) Piggyback  
 b) Single socket  
 c) Multi-socket  
 d) Piggyback reset socket
- (44) Which one of the following is UV erasable
- a) Flash memory  
 b) SRAM  
 c) EPROM  
 d) DRAM
- (45) Which type of memory is suitable for low volume production of embedded systems
- a) ROM  
 b) Volatile  
 c) Non-volatile  
 d) RAM
- (46) Which is the single device capable of providing prototyping support for a range of microcontroller
- a) ROM  
 b) Umbrella device  
 c) OTP  
 d) RAM
- (47) What type of memory is suitable for high volume production
- a) RAM  
 b) ROM  
 c) EPROM  
 d) EEPROM
- (48) How the input terminals are associated with external environments
- a) Actuators  
 b) Sensors  
 c) Inputs  
 d) Outputs
- (49) Which of the following are external pins whose logic state can be controlled by the processor to either be a logic zero or logic one is known as
- a) Analogue value  
 b) Display values  
 c) Binary values  
 d) Time derived digital outputs
- (50) What kind of visual panel is used for seven segmented display

- a) LED  
c) Binary output
- b) LCD  
d) Analogue output
- (51) Which are the two modes of 80286  
a) Real mode and protected mode  
c) Alternate and main
- b) Mode1 and mode2  
d) Mode A and mode
- (52) What is the size of the address bus in 80286  
a) 20  
c) 16
- b) 24  
d) 32
- (53) Which are the processors based on RISC  
a) SPARC  
c) MC68030
- b) 80386  
d) MC68020
- (54) Which of the architecture is more complex  
a) SPARC  
c) MC68030
- b) MC68030  
d) 8086
- (55) Which is the first company who defined RISC architecture  
a) Intel  
c) Motorola
- b) IBM  
d) MIPS
- (56) Which of the following processors execute its instruction in a single cycle  
a) 8086  
c) 8087
- b) 8088  
d) MIPS R2000
- (57) How is memory accessed in RISC architecture  
a) load and store instruction  
c) memory instruction
- b) opcode instruction  
d) bus instruction
- (58) What is CAM stands for  
a) content-addressable memory  
c) computing addressable memory
- b) complex addressable memory  
d) concurrently addressable memory
- (59) Which of the following processors uses Harvard architecture  
a) TEXAS TMS320  
c) 80286
- b) 80386  
d) 8086
- (60) Which company further developed the study of RISC architecture  
a) Intel  
c) university of Berkeley
- b) Motorola  
d) MIPS
- (61) Which of the following is an 8-bit RISC Harvard architecture  
a) AVR  
c) 8051
- b) Zilog80  
d) Motorola 6800
- (62) Which of the following is more quickly accessed  
a) RAM  
c) DRAM
- b) Cache memory  
d) SRAM
- (63) Which factor determines the effectiveness of the cache  
a) hit rate  
c) refresh rate
- b) refresh cycle  
d) refresh time
- (64) Which of the following is a common cache  
a) DIMM  
c) TLB
- b) SIMM  
d) Cache
- (65) What is the size of the cache for an 8086 processor

- a) 64 Kb
  - b) 128 Kb
  - c) 32 Kb
  - d) 16 Kb
- (66) Which factor determines the cache performance
- a) Software
  - b) peripheral
  - c) input
  - d) output
- (67) Which is the most basic non-volatile memory
- a) Flash memory
  - b) PROM
  - c) EPROM
  - d) ROM
- (68) Who has invented flash memory
- a) Dr.Fujio Masuoka
  - b) John Ellis
  - c) Josh Fisher
  - d) John Rutttenberg
- (69) Which of the following is serial access memory
- a) RAM
  - b) Flash memory
  - c) Shifters
  - d) ROM
- (70) Which of the following memories has more speed in accessing data
- a) SRAM
  - b) DRAM
  - c) EPROM
  - d) EEPROM