



Dr.G.R.Damodaran College of Science

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II M.Sc[IT] [2016-2018]

Semester III

Core: EMBEDDED SYSTEMS AND ROBOTICS – 363A

Multiple Choice Questions.

1. A micro controller at-least should consist of _____.
 - A. RAM, ROM, I/O devices, serial and parallel ports and timers.
 - 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.ANSWER: C
2. Unlike micro processors, micro controllers make use of batteries because they have _____.
 - A. High power dissipation.
 - B. Low power consumption.
 - C. Low voltage consumption.
 - D. Low current consumption.ANSWER: B
3. What is the order decided by a processor or the CPU of a controller to execute an instruction?
 - A. Decode,Fetch,Execute.
 - B. Execute,Fetch,Decode.
 - C. Fetch,Execute,Decode.
 - D. Fetch,Decode,Execute.ANSWER: D
4. How are micro controllers classified on the basic of internal bus width?
 - A. 8,16,32,64 bits.
 - B. 4,8,16,32 bits.
 - C. 8,16 bits.
 - D. 4,16,32 bits.ANSWER: B
5. Abbreviate CISC and RISC.
 - A. Complete Instruction Set Computer, Reduced Instruction Set Computer.
 - B. Complex Instruction Set Computer, Reduced Instruction Set Computer.
 - C. Complex Instruction Set Computer, Reliable Instruction Set Computer.
 - D. Complete Instruction Set Computer, Reliable Instruction Set ComputerANSWER: B
6. Give the names of the buses present in a controller for transferring data from one place to another?
 - A. Data bus, Address bus.

- B. Data bus.
- C. Data bus, Address bus, Control bus.
- D. Address bus.

ANSWER: C

7. What is the file extension that is loaded in a micro controller for executing any instruction?

- A. .doc
- B. .c
- C. .txt
- D. .hex

ANSWER: D

8. What is the most appropriate criterion for choosing the right micro controller of our choice?

- A. Speed.
- B. Availability.
- C. Ease with the product.
- D. All of the mentioned.

ANSWER: D

9. Why micro controllers are not called general purpose devices?

- A. Because they are based on VLSI technology
- B. Because they are not meant to do a single work at a time.
- C. Because they are cheap.
- D. Because they consume low power.

ANSWER: B

10. How does the microcontroller communicate with the external peripherals/memory?

- A. via I/O ports.
- B. via register arrays.
- C. via memory.
- D. All of the above.

ANSWER: A

11. Which category of microcontrollers acquires the complete hardware configuration on its chip so as to run the particular application?

- A. Embedded Memory Microcontrollers.
- B. External Memory Microcontrollers.
- C. Both A & B.
- D. None of the above.

ANSWER: A

12. The register that may be used as an operand register is _____.

- A. Accumulator.
- B. B registers.
- C. Data register.
- D. Accumulator and B register.

ANSWER: D

13. The register that can be used as a scratch pad is _____.

- A. Accumulator.
- B. B register.

- C. Data register.
- D. Accumulator and B register.

ANSWER: B

14. The registers that contains the status information is _____.

- A. Control registers.
- B. Instruction registers.
- C. Program status word.
- D. All of the above.

ANSWER: C

15. Which of the processor's stack does not contain the top-down data structure?

- A. 8086.
- B. 80286.
- C. 8051.
- D. 80386.

ANSWER: C

16. The architecture of 8051 consists of _____.

- A. 4 latches.
- B. 2 timer registers.
- C. 4 on-chip I/O ports.
- D. All of the above.

ANSWER: D

17. 8051 has following Special Function Registers. i) A, B and PSW. ii) P0, P1, P2 and P3, DPH and DPL. iii) SCON, TCON, SBUF, TMOD, TH1, TL1, TH0 and TL0. iv) PCON. v) IE and IP.

- A. All except iii
- B. All except i,ii,v
- C. All except v
- D. All are correct.

ANSWER: B

18. In microcontroller _____ is designated in clock cycles, and is usually measured in millions of cycles per second.

- A. Size
- B. Memory.
- C. Speed.
- D. None of the above.

ANSWER: C

19. Program memory in 8051 is _____.

- A. 64 KB external.
- B. 64 KB total external plus internal.
- C. 64 KB internal.
- D. 64 KB external plus 4 KB internal.

ANSWER: B

20. 8051 series of micro controllers are made by which of the following companies?

- A. Atmel.
- B. Philips.

- C. Both A & B.
- D. None of the above.

ANSWER: C

21. 8051 series has how many 16 bit registers?

- A. 2.
- B. 3.
- C. 1.
- D. 0.

ANSWER: A

22. When the micro controller executes some arithmetic operations, then the flag bits of which register are affected?

- A. PSW.
- B. SP.
- C. DPTR.
- D. PC.

ANSWER: A

23. Pushing data onto the stack, the stack pointer _____.

- A. Increases with every push.
- B. Decreases with every push.
- C. Both A & B.
- D. None of the above.

ANSWER: A

24. The 8051 microcontroller is of ___pin package as a _____ processor.

- A. 30, 1byte.
- B. 20, 1 byte.
- C. 40, 8 bit.
- D. 40, 8 byte.

ANSWER: C

25. In 8051 which interrupt has highest priority?

- A. IE1.
- B. TF0.
- C. IE0.
- D. TF1.

ANSWER: C

26. Serial port interrupt is generated, if _____ bits are set.

- A. IE.
- B. RI, IE.
- C. IP, TI.
- D. RI, TI.

ANSWER: D

27. The internal RAM memory of the 8051 is _____.

- A. 32 bytes.
- B. 64 bytes.
- C. 128 bytes.

D. 256 bytes.

ANSWER: C

28. The 8051 has _____ 16-bit counter/timers.

- A. 1.
- B. 2.
- C. 3.
- D. 4.

ANSWER: B

29. MOV A, @ R1 will _____.

- A. Copy R1 to the accumulator.
- B. Copy the accumulator to R1.
- C. Copy the contents of memory whose address is in R1 to the accumulator.
- D. Copy the accumulator to the contents of memory whose address is in R1.

ANSWER: C

30. Device pins _____ and _____ for the 8051 are used for connections to an external oscillator or crystal.

- A. XTAL1 and XTAL2.
- B. XAL1 and XAL2.
- C. TAL1 and TAL2.
- D. AL1 and AL2.

ANSWER: A

31. An alternate function of port pin P3.4 in the 8051 is _____.

- A. Timer 0.
- B. Timer 1.
- C. Interrupt 0.
- D. Interrupt 1.

ANSWER: A

32. The I/O ports that are used as address and data for external memory are _____.

- A. Ports 1 and 2.
- B. Ports 1 and 3.
- C. Ports 0 and 2.
- D. Ports 0 and 3.

ANSWER: C

33. The operations performed by data transfer instructions are on _____.

- A. Bit data.
- B. Byte data.
- C. 16-bit data.
- D. All of the above.

ANSWER: D

34. Which of the following is true while executing data transfer instructions?

- A. Program counter is not accessible.
- B. Restricted bit-transfer operations are allowed.
- C. Both operands can be direct/indirect register operands. .
- D. All of the mentioned.

ANSWER: C

35. The logical instruction that affect the carry flag during its execution is _____.
- A. XRL A;
 - B. ANL A;
 - C. ORL A;
 - D. RLC A;

ANSWER: D

36. The instruction that is used to complement or invert the bit of a bit addressable SFR is _____.

- A. CLR C.
- B. CPL C.
- C. CPL Bit.
- D. ANL Bit

ANSWER: C

37. The instructions that change the sequence of execution are _____.

- A. Conditional instructions.
- B. Logical instructions.
- C. Control transfer instructions.
- D. Data transfer instructions.

ANSWER: C

38. All conditional jumps are _____.

- A. Absolute jumps.
- B. Long jumps.
- C. Short jumps.
- D. All of the above.

ANSWER: C

39. The first byte of a short jump instruction represents _____.

- A. opcode byte.
- B. Relative address.
- C. opcode field.
- D. None of the above.

ANSWER: A

40. The third byte of the long jump instruction is _____.

- A. opcode.
- B. 5 LSBs of opcode.
- C. Higher byte of jump location or subroutine.
- D. Lower byte of jump location or subroutine.

ANSWER: C

41. The absolute jump instruction is intended mainly for a jump within a memory space of _____.

- A. 2 bytes.
- B. 2 Kbytes.
- C. 2 Mbytes.
- D. None of the above.

ANSWER: B

42. Which of the following is not an unconditional control transfer instruction?

- A. JMP.
- B. RET.
- C. JNC.
- D. CALL.

ANSWER: C

43. Which bit of the IE register is used to enable TxD/RxD interrupt?

- A. IE.D5.
- B. IE.D2.
- C. IE.D3.
- D. IE.D4

ANSWER: D

44. Which register is used to make the pulse a level or an edge triggered pulse?

- A. TCON.
- B. IE.
- C. IPR.
- D. SCON

ANSWER: A

45. Which pin of the external hardware is said to exhibit INTO interrupt?

- A. Pin no 10.
- B. Pin no 11.
- C. Pin no 12.
- D. Pin no 13.

ANSWER: C

46. What is the clock source for the timers?

- A. Some external crystal applied to the micro-controller for executing the timer.
- B. From the crystal applied to the micro-controller.
- C. Through the software.
- D. Through programming.

ANSWER: B

47. Inductive proximity sensors can be effective only when the objects are of _____ materials.

- A. Ferro magnetic.
- B. Diamagnetic.
- C. Paramagnetic.
- D. All of the above.

ANSWER: A

48. _____ act as detector in Optical sensor.

- A. Light emitting diode.
- B. Photo diode.
- C. Transistor.
- D. All of the above.

ANSWER: B

49. Which of the following statements is correct?

- A. Actuators and transducers are both examples of sensors.
- B. Sensors and transducers are both examples of actuators.
- C. Sensors and actuators are both examples of transducers.
- D. All the above.

ANSWER: C

50. The instruction, "INC" increases the contents of the specified register or memory location by _____.

- A. 2.
- B. 0.
- C. 1.
- D. 3.

ANSWER: C

51. The instruction that subtracts 1 from the contents of the specified register/memory location is _____.

- A. INC.
- B. SUBB.
- C. SUB.
- D. DEC.

ANSWER: D

52. The instruction that enables subtraction with borrow is _____.

- A. DEC.
- B. SUB.
- C. SBB.
- D. None of the above.

ANSWER: C

53. The flag that acts as Borrow flag in the instruction, SBB is _____.

- A. Direction flag.
- B. Carry flag.
- C. Parity flag.
- D. Trap flag.

ANSWER: B

54. In general, the source operand of an instruction can be _____.

- A. Memory location.
- B. Register.
- C. Immediate data.
- D. All the above.

ANSWER: D

55. In general, the destination operand of an instruction can be _____.

- A. Memory location.
- B. Register.
- C. Immediate data.
- D. Memory location and register.

ANSWER: D

56. The instruction, CMP to compare source and destination operands it performs _____.

- A. Addition.
- B. Subtraction.
- C. Division.
- D. Multiplication.

ANSWER: B

57. Which of the following is a mnemonic?

- A. ADD.
- B. ADC.
- C. AAA.
- D. ADD & ADC

ANSWER: C

58. The instruction in which adjustment is made before performing the operation is _____.

- A. AAA.
- B. AAS.
- C. AAM.
- D. AAD.

ANSWER: D

59. Is an assembly language a high level language?

- A. Yes.
- B. No.
- C. Cant be said.
- D. None of the mentioned.

ANSWER: B

60. A 14 bit program counter can execute a maximum of _____ memory locations?

- A. 4K.
- B. 8K.
- C. 16K.
- D. 64K.

ANSWER: C

61. When AVR wakes up, then the value of PC becomes?

- A. 00H.
- B. 000H.
- C. 0000H.
- D. 00000H.

ANSWER: D

62. Which devices are specifically being used for converting serial to parallel and from parallel to serial respectively?

- A. Timers.
- B. Counters.
- C. Registers.
- D. Serial communication.

ANSWER: C

63. What is the difference between UART and USART communication?

- A. they are the names of the same particular thing, just the difference of A and S is there in it.
 - B. one uses asynchronous means of communication and the other uses synchronous means of communication.
 - C. one uses asynchronous means of communication and the other uses asynchronous and synchronous means of communication.
 - D. one uses angular means of the communication and the other uses linear means of communication.
- ANSWER: C

64. Which of the following signal control the flow of data?

- A. RTS.
- B. DTR.
- C. Both of the mentioned.
- D. None of the mentioned.

ANSWER: A

65. What is the function of SCON register?

- A. To control SBUF and SMOD registers.
- B. To program the start bit, stop bit, and data bits of framing.
- C. None of the mentioned.
- D. Both of the mentioned.

ANSWER: B

66. What should be done if we want to double the baud rate?

- A. Change a bit of the TMOD register.
- B. Change a bit of the PCON register.
- C. Change a bit of the SCON register.
- D. Change a bit of the SBUF register.

ANSWER: B

67. _____ refers to the number of signal or symbol changes that occur per second.

- A. Baud rate.
- B. Bit rate.
- C. Byte rate.
- D. None of the above.

ANSWER: A

68. The counters are divided into two _____ bit registers called the timer low (TL0, TL1) and high (TH0, TH1) bytes.

- A. 8.
- B. 16.
- C. 32.
- D. 64.

ANSWER: A

69. Expand SFR.

- A. Special Function Reset.
- B. Specific Function Register.
- C. Special Function Register.
- D. Specific Function Reset.

ANSWER: C

70. Expand FET.

- A. Field Element Transmission.
- B. Field Effect Transistors.
- C. Field Element Transformers.
- D. Field Effect Transmission.

ANSWER: B

71. PSEN means _____.

- A. Programmable store element.
- B. Problem store element.
- C. Program static enable.
- D. Program store enable.

ANSWER: D

72. LJMP LAB5 means_____.

- A. Short jump to the address marked as LAB5.
- B. Long jump to the address marked as LAB5.
- C. Jump to the address marked as LAB5.
- D. None of the above.

ANSWER: B

73. JNZ LOOP means_____.

- A. Jump if Not Zero LOOP.
- B. Jump.
- C. Jump if zero LOOP.
- D. LOOP infinite.

ANSWER: A

74. Abbreviate UART.

- A. United asynchronous receiver/transmitter.
- B. Universal asynchronous receiver/transmitter.
- C. United app receiver/transmitter.
- D. Universal asynchronous receive/transmit.

ANSWER: B

75. _____ responds to hardware signals.

- A. Interrupts.
- B. Semaphore.
- C. Deadlock.
- D. Binary semaphore.

ANSWER: A

76. _____ interrupt are provided in the 8051.

- A. Two.
- B. Three.
- C. Four.
- D. Five.

ANSWER: D

77. _____ is a system that has software embedded into computer-hardware, which makes a system dedicated for an application (s)or specific part of an application or product or part of a larger system.

- A. Embedded Programming
- B. Embedded System.
- C. SoC.
- D. VLSI.

ANSWER: B

78. Expand VLSI.

- A. Very Large Scale Integration.
- B. Very Low Scaling Independent.
- C. Very Low Scale Intermediate.
- D. Very Later Scaling Integration.

ANSWER: A

79. Robot is derived from Czech word _____.

- A. Rabota.
- B. Robota.
- C. Rebot.
- D. Ribota.

ANSWER: B

80. Word robot was coined by a Czech novelist _____.

- A. Karel Capek.
- B. Victor von Scheliha
- C. Jacques de Vaucanson.
- D. William Grey Walter.

ANSWER: A

81. A Robot is a _____.

- A. Programmable.
- B. Multi functional manipulator.
- C. Both (A) and (B).
- D. None of the above.

ANSWER: C

82. The main objective(s) of Industrial robot is to _____.

- A. To minimise the labour requirement.
- B. To increase productivity.
- C. To enhance the life of production machines.
- D. All of the above.

ANSWER: D

83. Drives are also known as _____.

- A. Actuators.
- B. Controller.
- C. Sensors.
- D. Manipulator.

ANSWER: A

84. Which of the following work is done by General purpose robot?

- A. Part picking.
- B. Welding.

- C. Spray painting.
- D. All of the above.

ANSWER: D

85. _____ drive is used for lighter class of Robot.

- A. Pneumatic drive.
- B. Hydraulic drive.
- C. Electric drive.
- D. All of the above.

ANSWER: A

86. What are the possible forms of energy transmission that can be undertaken by a transducer?

- A. Acoustical.
- B. Electrical.
- C. Mechanical.
- D. All of the above.

ANSWER: D

87. Which of the following is not covered under Mechanical energy domain?

- A. Distance.
- B. Latent heat.
- C. Force.
- D. Size.

ANSWER: B

88. Which of the following form the basis of Electrical domain?

- A. Current.
- B. Resistance.
- C. Inductance.
- D. All of the above.

ANSWER: D

89. The sensors are classified on the basis of _____.

- A. Functions.
- B. Performance.
- C. Output.
- D. All of the above.

ANSWER: D

90. The ability to give same output reading when same input value is applied repeatedly is known as _____.

- A. Stability.
- B. Repeatability.
- C. Accuracy.
- D. Sensitivity.

ANSWER: B

91. _____ is the ability of the sensor to indicate the same output over a period of time for a constant input.

- A. Stability.
- B. Resolution.

- C. Error.
- D. Impedance.

ANSWER: A

92. _____ is the time required to come to an output value within the specified error level.

- A. Response time.
- B. Rise time.
- C. Settling time.
- D. None of the above

ANSWER: C

93. _____ is the coded output.

- A. Modulation of amplitude.
- B. Modulation of frequency.
- C. Modulation of pulse width.
- D. All of the above.

ANSWER: D

94. _____ is not an example of transducer.

- A. Analogue voltmeter.
- B. Thermocouple.
- C. Photo electric cell.
- D. Pneumatic cylinder.

ANSWER: A

95. _____ are types of Hall Effect sensors.

- A. Linear Hall Effect sensor.
- B. Threshold Hall Effect sensor.
- C. Both (A) and (B).
- D. None of the above.

ANSWER: C

96. A piezo-electrical crystal generates voltage when subjected to ____ force.

- A. Electrical.
- B. Mechanical.
- C. Gravity.
- D. All of the above.

ANSWER: B

97. Hall Effect sensors are used in _____.

- A. Flow meter.
- B. Fuel level indicator.
- C. Both (A) and (B).
- D. None of the above.

ANSWER: C

98. _____ are the types of Light sensors.

- A. Photo sensor.
- B. Photo transistors.
- C. Photo conductors.
- D. All of the above.

ANSWER: D

99. _____ type of sensors are used to generate information in object grasping and obstacle avoidance.

- A. Hall Effect sensor.
- B. Proximity sensor.
- C. Light sensor.
- D. Optical sensors.

ANSWER: B

100. Inductive proximity sensors can be effective only when the objects are of _____ materials.

- A. Ferro magnetic.
- B. Diamagnetic.
- C. Paramagnetic.
- D. All of the above.

ANSWER: A

101. _____ acts as detector in Optical sensor.

- A. Light emitting diode.
- B. Photo diode.
- C. Transistor.
- D. All of the above.

ANSWER: B

102. Expand LED.

- A. Light Emitting Diode.
- B. Low Emitting Diode.
- C. Light Emission Diode.
- D. None of the above.

ANSWER: A

103. _____ is a device which compares two voltages or currents and switches its output to indicate which is larger.

- A. Comparator.
- B. Controller.
- C. Sensors.
- D. Manipulator.

ANSWER: A

104. The smallest increment of measure that a device can make is called _____.

- A. Stability.
- B. Resolution.
- C. Error.
- D. Impedance.

ANSWER: B

105. _____ is a device that measures a physical quantity and converts it into a signal which can be read by an observer or by an instrument.

- A. Actuators.
- B. Controller.
- C. Sensors.

D. Manipulator.

ANSWER: C

106. Expand MEMS.

A. Macro electromechanical Systems.

B. Micro Electromechanical Systems.

C. Mini electromechanical Systems.

D. None of the above.

ANSWER: B

107. Measurement with small deviation is called _____.

A. Stability.

B. Resolution.

C. Precision.

D. Impedance.

ANSWER: C

108. _____ are caused by several parameters and change in time in an unpredictable fashion.

A. Random Errors.

B. Resolution.

C. Precision.

D. Errors.

ANSWER: A

109. Change in output for unit change in input is called _____.

A. Stability.

B. Repeatability.

C. Accuracy.

D. Sensitivity.

ANSWER: D

110. Motion sensor includes _____ types of devices.

A. Potentiometers.

B. Resolvers.

C. Optical encoders.

D. all.

ANSWER: D

111. _____ are used in accurate servo and robot systems to measure angular displacement.

A. Potentiometers.

B. Resolvers.

C. Optical encoders.

D. Tachometers.

ANSWER: B

112. _____ is defined as the amount of deformation per unit length of an object.

A. Strain.

B. Piezo-resistive sensors

C. Optical encoders.

D. Tachometers.

ANSWER: A

113. Polymers, ceramics, and molecules such as water are permanently _____.

- A. Depolarized.
- B. Polarized.
- C. Reflected.
- D. Refracted.

ANSWER: B

114. Permanently polarized materials are _____.

- A. Methane.
- B. Benzene.
- C. Quartz.
- D. Carbon dioxide.

ANSWER: C

115. _____ are piezoelectric materials.

- A. Methane.
- B. Benzene.
- C. Barium titanate.
- D. Carbon dioxide.

ANSWER: C

116. An applied electric field can cause a piezoelectric material to change dimensions and this phenomenon is known as _____.

- A. Electrostriction.
- B. Polarized
- C. Reflected.
- D. Refracted.

ANSWER: A

117. Piezoelectric materials are used in _____ transducers.

- A. Light.
- B. Air.
- C. Acoustic.
- D. Water.

ANSWER: C

118. _____ is an autonomous robot which follows either black line in white or white line in black area.

- A. Line follower.
- B. Edge detector.
- C. Light dependent resistor.
- D. Photo sensors.

ANSWER: A

119. Sensor for the line follower robot is _____.

- A. Photosensors.
- B. Sound sensor.
- C. Temperature sensor
- D. Motion sensor.

ANSWER: A

120. Expand AUV.

- A. Autonomous Underwater Vehicle.
- B. Anonymous Underwater Vehicle.
- C. Automatic Underwater Vehicle.
- D. Autonomous Unmanned Vehicle.

ANSWER: A

121. Expand UAV.

- A. Unmanned Aerial Vehicle
- B. Underwater Aerial Vehicle
- C. Unmanned Autonomous Vehicle.
- D. Underwater Anonymous Vehicle.

ANSWER: A

122. The first industrial robot is _____.

- A. Puma.
- B. SCARA.
- C. UNIMATE.
- D. Cognex In-Sight Robot.

ANSWER: C

123. _____ sensor is installed at the ear position of the robot in order to detect the voice of a subject.

- A. Photo.
- B. Sound.
- C. Temperature.
- D. Motion.

ANSWER: C

124. _____ are the indicated value depends on direction of the test.

- A. Stability.
- B. Repeatability.
- C. Hysteresis.
- D. Sensitivity.

ANSWER: C

125. _____ Infrared sensors are basically Infrared detectors.

- A. Active.
- B. Passive.
- C. Quantum.
- D. Proactive.

ANSWER: B

126. Function of transducer is to convert _____.

- A. Electrical signal into non electrical quantity.
- B. Non electrical quantity into electrical signal.
- C. Electrical signal into mechanical quantity.
- D. All of these.

ANSWER: B

127. Potentiometer transducers are used for the measurement of _____.

- A. Pressure.
- B. Displacement.
- C. Humidity.
- D. Both (a) and (b).

ANSWER: D

128. Thermistor is a transducer. Its temperature coefficient is _____.

- A. Negative.
- B. Positive.
- C. Zero.
- D. None of these.

ANSWER: A

129. The linear variable differential transformer transducer is _____.

- A. Inductive transducer.
- B. Non-inductive transducer.
- C. Capacitive transducer.
- D. Resistive transducer.

ANSWER: A

130. The transducer used for the measurements is/are _____.

- A. Resistance temperature detectors.
- B. Thermistors.
- C. Ultrasonic.
- D. All of these.

ANSWER: D

131. For the measurement of pressure the instruments used can be _____.

- A. Mechanical.
- B. Electro-mechanical.
- C. Electronic.
- D. All of these.

ANSWER: D

132. With the increase in the intensity of light, the resistance of a photovoltaic cell _____.

- A. Increases.
- B. Decreases.
- C. Remains same.
- D. None of these.

ANSWER: B

133. A thermistor is a _____.

- A. Sensor.
- B. ADC.
- C. Transducer.
- D. Microcontroller.

ANSWER: C

134. Transducers produce output voltage in the form of?

- A. an analog voltage in the form of current.

- B. an analog voltage in the form of voltage.
- C. an analog voltage in the form of pressure.
- D. all of the mentioned.

ANSWER: D

135. Strain gauges are used to measure _____.

- A. Displacement.
- B. Force.
- C. Load.
- D. All of the above.

ANSWER: D

136. _____ is a register used to measure strain on an object.

- A. Pressure.
- B. Volume.
- C. Force.
- D. Strain gauge.

ANSWER: D

137. ARM is a family of _____ architectures.

- A. RISC
- B. CISC
- C. Both (a) and (b)
- D. None of the above.

ANSWER: A

138. In AVR, which registers are there for the I/O programming of ports?

- A. PORT.
- B. PIN.
- C. DDR.
- D. all of the mentioned.

ANSWER: D

139. PIC is a family of microcontrollers made by _____.

- A. Dell.
- B. Intel.
- C. Microchip Technology.
- D. Microsoft.

ANSWER: C

140. Expand PIC.

- A. Pick Interface Control.
- B. Peripheral Interface Controllers.
- C. Pick Internal Control.
- D. Peripheral Internal Controllers.

ANSWER: B

141. How many clock pulses are confined by each machine cycle of Peripheral-Interface Controllers?

- A. 4.
- B. 8.
- C. 12.

D. 16

ANSWER: A

142. IR Sensors work by using a specific light sensor to detect a select light wavelength in the _____ spectrum.

- A. UV.
- B. IR.
- C. X-Rays.
- D. Gamma Rays.

ANSWER: B

143. Remote sensing is an application of _____.

- A. Gamma rays.
- B. X-rays.
- C. Visible and infrared.
- D. Ultraviolet.

ANSWER: C

144. Which color is having largest wavelength in visible spectrum?

- A. Red.
- B. Blue.
- C. Green.
- D. Yellow.

ANSWER: A

145. _____ Sensor is used for obstacle detection.

- A. Ultrasonic.
- B. Sound sensor.
- C. Temperature sensor.
- D. Motion sensor.

ANSWER: A

146. Features of Ultrasonic Sensor are _____.

- A. Compact and light weight.
- B. High sensitivity and high pressure.
- C. High reliability.
- D. All the above.

ANSWER: D

147. Which of the following work is done by General purpose robot?

- A. Part picking.
- B. Welding.
- C. Spray painting.
- D. All of the above.

ANSWER: D

148. _____ drive is used for lighter class of Robot.

- A. Pneumatic drive.
- B. Hydraulic drive.
- C. Electric drive.
- D. All of the above.

ANSWER: A

149. The Robot designed with Cartesian coordinate systems has _____.

- A. Three linear movements.
- B. Three rotational movements.
- C. Two linear and one rotational movement.
- D. Two rotational and one linear movement.

ANSWER: A

150. The Robot designed with Polar coordinate systems has _____.

- A. Three linear movements.
- B. Three rotational movements.
- C. Two linear and one rotational movement.
- D. Two rotational and one linear movement.

ANSWER: D

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