



Dr.G.R.Damodaran College of Science

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CRISL rated 'A' (TN) for MBA and MIB Programmes

III BCA-B Section [2015-2018 Batch]

Semester V

Elective I: Introduction to Robotics – 506U7

Multiple Choice Questions.

1. Robot is derived from Czech word

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

ANSWER: B

2. A Robot is a _____.

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

ANSWER: C

3. Electronics is designed to manipulate a flow of _____.

- A. electrons
- B. ions
- C. neutrons
- D. axons

ANSWER: A

4. Power, $P=$ _____.

- A. I/V
- B. $I * V$
- C. $2(I/V)$
- D. $2(I*V)$

ANSWER: B

5. _____ is the positive part of the circuit.

- A. Ground
- B. Electrons
- C. Source
- D. Actuators

ANSWER: C

6. Ground is the _____ node of the circuit.

- A. root

- B. positive
- C. negative
- D. all the above

ANSWER: C

7. An electronic circuit comprises active components like _____.

- A. transistors.
- B. capacitors.
- C. resistors.
- D. inductors.

ANSWER: A

8. The passive component of electronic circuit in the following is _____.

- A. IC's
- B. inductors
- C. transistors
- D. diodes

ANSWER: B

9. A _____ is a two-terminal passive electronics component, used to oppose or limit the current.

- A. power
- B. diode
- C. capacitor
- D. resistor

ANSWER: D

10. _____ works based on the principle of Ohm's law.

- A. capacitor
- B. resistor
- C. diode
- D. none of the above

ANSWER: B

11. A device that is used to change the resistance according to our requirements in an electronic circuit is known as a _____ resistor.

- A. fixed
- B. variable
- C. wire wound
- D. metal film

ANSWER: B

12. The values of resistance in _____ are determined during the design phase of the circuit, based on this there is no need to adjust the circuit.

- A. wire wound
- B. variable
- C. fixed
- D. metal film

ANSWER: C

13. _____ resistors are made from metal oxide or small rods of ceramic-coated metal.

- A. variable

- B. wire wound
- C. fixed
- D. metal film

ANSWER: D

14. EIA stands for _____.

- A. Electronic Industry Alliance
- B. Equipment Induction Alloy
- C. Equipment Industry Alliance
- D. Electronic Inductive Alliance

ANSWER: A

15. Light-dependent resistors are very useful in different _____.

- A. street lights
- B. clocks
- C. alarms
- D. all the above

ANSWER: D

16. A _____ made from two conductive plates with an insulator between them and it stores electrical energy in the form of an electric field.

- A. color code
- B. capacitor
- C. resistor
- D. fixed resistor

ANSWER: B

17. A capacitor blocks the _____ signals and allows the _____ signals respectively.

- A. DC, AC
- B. AC, DC
- C. AC, AC
- D. DC, DC

ANSWER: A

18. Film Capacitors are sometimes called _____ capacitors because which use polystyrene, polycarbonate or Teflon as their dielectrics.

- A. variable
- B. electric
- C. plastic
- D. ceramic

ANSWER: C

19. _____ capacitors are used in high frequency circuits such as audio to RF.

- A. Fixed
- B. Ceramic
- C. Variable
- D. Plastic

ANSWER: B

20. A _____ capacitor is one whose capacitance may be intentionally and repeatedly changed mechanically

- A. Fixed
 - B. Ceramic
 - C. Variable
 - D. electric
- ANSWER: C

21. A transistor is a _____ terminal semiconductor device.

- A. one
- B. two
- C. three
- D. four

ANSWER: C

22. BJT stands for _____.

- A. Binary Junction Resistor
- B. Bipolar Junction Transistor
- C. Bi Junction Transistor
- D. Binary Junction Transistor

ANSWER: B

23. FET stands for _____.

- A. Field Effect Transistor
- B. Field Efficient Transistor
- C. File Efficient Transistor
- D. none of the above

ANSWER: A

24. A transistor can act as a _____.

- A. switch and an amplifier
- B. switch
- C. amplifier
- D. none of the above

ANSWER: A

25. A _____ is a device that allows current to flow in one direction and usually made with semiconductor material.

- A. resistor
- B. inductor
- C. diode
- D. capacitor

ANSWER: C

26. A diode has _____ terminals.

- A. one
- B. two
- C. three
- D. four

ANSWER: B

27. The applications of P-N junction diode includes _____.

- A. rectifiers in DC power supply

- B. demodulation circuits
- C. clipping and clamping networks
- D. all the above

ANSWER: D

28. An _____ is a solid state optical PN-junction diode which emits light energy in the form of "photons" when it is forward biased by a voltage allowing current flow across its junction.

- A. LED
- B. capacitor
- C. resistor
- D. ions

ANSWER: A

29. _____ is an electric motor that is driven by alternating current.

- A. AC
- B. DC
- C. shaft
- D. coil

ANSWER: A

30. An Ac controllers are sometimes referred to as _____.

- A. rectifier
- B. inductor
- C. driver
- D. speedometer

ANSWER: C

31. _____ are small actuators designed for remotely operating model vehicles such as cars, airplanes, and boats.

- A. AC
- B. DC
- C. Radio Control (RC) servos
- D. none of the above

ANSWER: C

32. _____ refers to an error sensing feedback control which is used to correct the performance of a system.

- A. ac
- B. dc
- C. servo
- D. none of the above

ANSWER: C

33. PWM stands for _____.

- A. pulse width modulation
- B. positive width modulation
- C. positive modulation
- D. pulse wire modulation

ANSWER: A

34. The _____ is a very useful tool for assembling electronic circuits and connecting copper

wires together.

- A. metal conductor
- B. copper base
- C. soldering iron
- D. alloy

ANSWER: C

35. _____ measures voltage, current and resistance. Many can measure transistor and diode characteristics, frequency and capacity. Some can measure temperature or light intensity.

- A. multimeter
- B. soldering iron
- C. alloy
- D. metal conductor

ANSWER: A

36. _____ makes an electric signal visible.

- A. Oscilloscope
- B. multimeter
- C. metal conductor
- D. soldering iron

ANSWER: A

37. _____ is a pen-like devices that detect logic levels (either TTL or CMOS)

- A. copper wire
- B. multimeter
- C. Oscilloscope
- D. Logic probe

ANSWER: D

38. _____ measures the frequency of a signal.

- A. Logic probe
- B. Frequency meters
- C. Multimeter
- D. Oscilloscope

ANSWER: B

39. A _____ is the path by which the electricity flows from one end of the battery to the other.

- A. multimeter
- B. circuit
- C. oscilloscope
- D. none of the above

ANSWER: B

40. 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

41. Abbreviate CISC.

- A. Complete Instruction Set Computer.
- B. Complex Instruction Set Computer.
- C. Complex Information Set Computer.
- D. Complete Instruction Sequential Computer.

ANSWER: B

42. Expand RISC.

- A. Reduced Information Set Computer.
- B. Reduced Instruction Set Computer.
- C. Reliable Instruction Set Computer.
- D. Reliable Information Set Computation.

ANSWER: B

43. 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

44. 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

45. 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

46. 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

47. 8051 series has how many 16 bit registers?

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

ANSWER: A

48. 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

49. _____ act as detector in Optical sensor.

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

ANSWER: B

50. 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

51. 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

52. The following is true for a Robot and NC Machine.

- A. Similar power drive technology is used in both
- B. Different feedback systems are used in both
- C. Programming is same for both
- D. All of the above

ANSWER: A

53. The manipulator arm in robot is used as _____.

- A. for holding a piece or tool.
- B. Number of degrees of freedom of movement.
- C. move the manipulator arm and end effector.
- D. delivers commands to the actuators.

ANSWER: B

54. Controllers are used as _____ in robot.

- A. for holding a piece or tool.
- B. delivers commands to the actuators.
- C. move the manipulator arm and end effector.
- D. Number of degrees of freedom of movement.

ANSWER: B

55. The function of Robot drive is _____.

- A. for holding a piece or tool.
- B. delivers commands to the actuators.
- C. move the manipulator arm and end effector.
- D. Number of degrees of freedom of movement.

ANSWER: C

56. Gripper in robot is _____.
- A. for holding a piece or tool.
 - B. delivers commands to the actuators.
 - C. move the manipulator arm and end effector.
 - D. Number of degrees of freedom of movement.

ANSWER: A

57. Drives are also known as _____.
- A. actuators
 - B. controller
 - C. sensors
 - D. manipulator

ANSWER: A

58. Clockwise of Anti clockwise rotation about the vertical axis to the perpendicular arm is provided through _____.
- A. Shoulder swivel
 - B. Elbow extension
 - C. Arm sweep
 - D. Wrist bend

ANSWER: C

59. Radial movement (in & out) to the manipulator arm is provided by _____.
- A. Elbow extension
 - B. Wrist bend
 - C. Wrist swivel
 - D. Wrist yaw

ANSWER: A

60. Industrial Robots are generally designed to carry which of the following coordinate system(s).
- A. Cartesian coordinate systems
 - B. Polar coordinate systems
 - C. Cylindrical coordinate system
 - D. All of the above

ANSWER: D

61. 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

62. 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

63. The Robot designed with cylindrical 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: C

64. 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

65. The following drive is used for lighter class of Robot.
- A. Pneumatic drive
 - B. Hydraulic drive
 - C. Electric drive
 - D. All of the above

ANSWER: A

66. Internal state sensors are used for measuring _____ of the end effector.
- A. Position
 - B. Position & Velocity
 - C. Velocity & Acceleration
 - D. Position, Velocity & Acceleration

ANSWER: D

67. Which of the following sensors determines the relationship of the robot and its environment and the objects handled by it?
- A. Internal State sensors
 - B. External State sensors
 - C. Both (A) and (B)
 - D. None of the above

ANSWER: C

68. Which of the following is not a programming language for computer controlled robot?
- A. AMU
 - B. VAL
 - C. RAIL
 - D. HELP

ANSWER: A

69. In which of the following operations Continuous Path System is used?
- A. Pick and Place
 - B. Loading and Unloading
 - C. Continuous welding
 - D. All of the above

ANSWER: C

70. What is the name for information sent from robot sensors to robot controllers?

- A. temperature
- B. pressure
- C. feedback
- D. signal

ANSWER: C

71. Which of the following terms refers to the rotational motion of a robot arm?

- A. swivel
- B. axle
- C. retrograde
- D. roll

ANSWER: D

72. What is the name for the space inside which a robot unit operates?

- A. environment
- B. spatial base
- C. danger zone
- D. work envelop

ANSWER: D

73. Which of the following terms IS NOT one of the five basic parts of a robot?

- A. peripheral tools
- B. end effectors
- C. controller
- D. drive

ANSWER: A

74. The number of moveable joints in the base, the arm, and the end effectors of the robot determines

-
- A. degrees of freedom
 - B. payload capacity
 - C. operational limits
 - D. flexibility

ANSWER: A

75. Which of the following places would be LEAST likely to include operational robots?

- A. factory
- B. hospitals
- C. chemical research laboratories
- D. private homes

ANSWER: D

76. For a robot unit to be considered a functional industrial robot, typically, how many degrees of freedom would the robot have?

- A. 2
- B. 4
- C. 6
- D. 8

ANSWER: C

77. Which of the basic parts of a robot unit would include the computer circuitry that could be programmed to determine what the robot would do?

- A. sensor
- B. controller
- C. arm
- D. end effector

ANSWER: B

78. A robot can determine the steepness of a slope using _____.

- A. epipolar navigation system
- B. clinometer
- C. end effector
- D. manipulator

ANSWER: B

79. A color vision system can use three gray-scale cameras, equipped with filters that allow which three colors of light to pass?

- A. Blue, red, and yellow.
- B. Blue, red, and green.
- C. Cyan, magenta, and yellow.
- D. Orange, green, and violet.

ANSWER: B

80. A robot arm that moves along three independent axes, each of which is straight and perpendicular to the other two, employs _____.

- A. Revolution geometry.
- B. Spherical coordinate geometry.
- C. Cartesian coordinate geometry.
- D. Cylindrical coordinate geometry.

ANSWER: C

81. The region throughout which a robot arm can accomplish tasks is called its _____.

- A. Coordinate geometry.
- B. Reference axis.
- C. Reference frame.
- D. Work envelope.

ANSWER: D

82. According to Asimov's three laws, under what circumstances is it all right for a robot to injure a human being?

- A. Never.
- B. When the human being specifically requests it.
- C. In case of an accident.
- D. In case the robot controller is infected with a computer virus.

ANSWER: A

83. An android takes the form of _____.

- A. An insect.
- B. A human body.
- C. A simple robot arm.
- D. Binocular vision.

ANSWER: B

84. Second-generation robots first were used around the year _____.
- A. 1950.
 - B. 1960.
 - C. 1970.
 - D. 1980.

ANSWER: D

85. The extent to which a machine vision system can differentiate between two objects is called _____.
- A. Magnification.
 - B. Sensitivity.
 - C. Selectivity.
 - D. Resolution.

ANSWER: D

86. An automotive robot might best keep itself traveling down a specific lane of traffic by using _____.
- A. Binaural hearing.
 - B. Epipolar navigation.
 - C. Edge detection.
 - D. A second-generation end effector.

ANSWER: C

87. A rule-based system is also known as _____.
- A. Artificial intelligence.
 - B. An expert system.
 - C. An analytical engine.
 - D. An automated guided vehicle.

ANSWER: B

88. A robot that has its own computer, and can work independently of other robots or computers, is called _____.
- A. Android.
 - B. Insect robot.
 - C. Automated guided vehicle.
 - D. Autonomous robot.

ANSWER: D

89. A manipulator is also known as _____.
- A. Track drive.
 - B. Robot arm.
 - C. Vision system.
 - D. Robot controller.

ANSWER: B

90. Proximity sensing is most closely akin to _____.
- A. Direction measurement.
 - B. Epipolar navigation.
 - C. Distance measurement.

D. Machine vision.

ANSWER: C

91. The number of ways in which a robot arm can move is known as _____.

- A. Degrees of rotation.
- B. Degrees of freedom.
- C. Degrees of arc.
- D. Coordinate geometry.

ANSWER: B

92. Spherical coordinates can uniquely define the position of a point in up to _____.

- A. One dimension.
- B. Two dimension.
- C. Three dimension.
- D. Four dimension.

ANSWER: C

93. An asset of epipolar navigation is the fact that it _____.

- A. Does not require binaural hearing.
- B. Does not require a computer.
- C. Can be done from a single observation frame.
- D. Requires no reference points at all.

ANSWER: C

94. Rodney Brooks is best known for his work with _____.

- A. Epipolar navigation.
- B. Binocular vision.
- C. Range sensing and plotting.
- D. Insect robots.

ANSWER: D

95. If a robot can alter its own trajectory in response to external conditions, it is considered to be

_____.

- A. intelligent
- B. mobile
- C. open loop
- D. non-servo

ANSWER: A

96. Which of the following statements concerning implementation of robotic systems is correct?

- A. implementation of robots CAN save existing jobs
- B. implementation of robots CAN create new jobs
- C. robotics could prevent a business from closing
- D. all of the mentioned

ANSWER: D

97. Which of the following robots are FULLY autonomous robots?

- A. Ventana ROV (for Underwater jelly-tracking).
- B. Minerva.
- C. MARs Rover Spirit.
- D. None of the above.

ANSWER: B

98. Behavior based navigation is better than planning based navigation in some situations because

_____.

- A. It uses a world model.
- B. Behaviors cannot be fused through competitive coordination schemes.
- C. It navigates by planning a path around obstacles.
- D. None of the above.

ANSWER: D

99. In general, a locomotion system can possibly have _____.

- A. Good stability and Good controllability and Good maneuverability.
- B. Good controllability and Good maneuverability.
- C. Good stability and Good controllability.
- D. None of the above.

ANSWER: C

100. Dead reckoning is a good way to navigate because _____.

- A. It does not require proprioceptive sensors.
- B. Odometry errors are non-deterministic.
- C. Low-resolution encoders have noise.
- D. None of the above.

ANSWER: D

101. A robot using control inputs to predict position estimates is moving in the negative y direction in a global coordinate frame. With respect to the variance in its final position estimate, it will have

_____.

- A. Greatest variance in the y direction
- B. Equal variance in the x and y directions
- C. Least variance in the direction orthogonal to its motion
- D. None of the above

ANSWER: D

102. Motion sensor includes _____ types of devices.

- A. Potentiometers
- B. Resolvers
- C. Optical encoders
- D. all the above

ANSWER: D

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

- A. Potentiometers
- B. Resolvers
- C. Optical encoders.
- D. Tachometers

ANSWER: B

104. _____ 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

105. _____ are piezoelectric materials.

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

ANSWER: C

106. 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

107. Piezoelectric materials are used in _____ transducers.

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

ANSWER: C

108. _____ 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

109. Sensor for the line follower robot is _____.

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

ANSWER: A

110. Expand AUV.

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

ANSWER: A

111. Expand UAV.

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

D. Underwater Anonymous Vehicle.

ANSWER: A

112. The first industrial robot is _____.

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

ANSWER: C

113. _____ 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

114. _____ Infrared sensors are basically Infrared detectors.

- A. active
- B. passive
- C. quantum
- D. proactive

ANSWER: B

115. 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

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

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

ANSWER: D

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

- A. negative
- B. positive
- C. zero
- D. none of these

ANSWER: A

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

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

ANSWER: C

119. ARM is a family of _____ architectures.
- A. RISC
 - B. CISC
 - C. Both a and b
 - D. None of the above.

ANSWER: A

120. In AVR, which registers are there for the I/O programming of ports?
- A. PORT
 - B. PIN
 - C. DDR
 - D. all the above.

ANSWER: D

121. PIC is a family of microcontrollers made by _____.
- A. Dell
 - B. Intel.
 - C. Microchip Technology.
 - D. Microsoft.

ANSWER: C

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

ANSWER: C

123. 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

124. Remote sensing is an application of _____.
- A. Gamma rays.
 - B. X-rays.
 - C. Visible and infrared.
 - D. Ultraviolet.

ANSWER: C

125. Which color is having largest wavelength in visible spectrum?
- A. red
 - B. blue
 - C. green
 - D. yellow

ANSWER: A

126. _____ Sensor is used for obstacle detection.

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

ANSWER: A

127. 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

128. Which of the following is not a version of the Arduino?

- A. Tre
- B. Galileo
- C. Zero
- D. Leonardio

ANSWER: D

129. Which language is the Arduino IDE written in?

- A. Java
- B. C
- C. C plus plus
- D. PHP

ANSWER: A

130. In delay(t), t is in _____.

- A. microsec
- B. millisecc
- C. nanosec
- D. sec

ANSWER: B

131. PCB refers to _____.

- A. programmable circuit board.
- B. printed circuit board.
- C. programmable compact board.
- D. printed compact board.

ANSWER: B

132. Which of the following is the type of PCB board?

- A. single sided
- B. double sided
- C. multi-layered
- D. all the above

ANSWER: D

133. Single sided print circuit boards are in use since _____.

- A. 1930.
- B. 1940.
- C. 1950.
- D. 1960.

ANSWER: C

134. In _____ type of PCB, the copper tracks are available on both sides of the board.

- A. single sided
- B. double sided
- C. multi-layered
- D. none of the above

ANSWER: B

135. The most common uses of the _____ PCBs include mobile systems, amplifiers, converters, instrumentation devices, regulators, etc.

- A. single sided
- B. double sided
- C. multi-layered
- D. none of the above

ANSWER: B

136. The _____ PCB is made by multiple PCBs that are assembled together with a mutual connection between them.

- A. single sided
- B. double sided
- C. triple sided
- D. multi-layered

ANSWER: D

137. Which of the following is the PCB Designing software in the embedded system design process?

- A. ZenitPCB
- B. BSch3V
- C. gEDA
- D. all the above

ANSWER: D

138. What license is Arduino distributed under?

- A. Proprietary with GNU GPL Ambient User Interface
- B. Proprietary
- C. Shareware
- D. LGPL or GPL license

ANSWER: D

139. Which of these can an Arduino NOT be used for?

- A. controlling servos
- B. displaying analog inputs
- C. building robots
- D. an Arduino can be used to do all of these

ANSWER: D

140. How many analog ports does an Arduino have?

- A. five, and they are labeled A1-A5
- B. six, and they are labeled A0-A5
- C. six, and they are labeled A1-A6
- D. five, and they are labeled A0-A4

ANSWER: B

141. The Arduino IDE is derived from _____.

- A. Wiring and Python
- B. Wiring and Processing
- C. Wirer and Python
- D. Wirer and Processing

ANSWER: B

142. Which of the following is not a valid datatype in Arduino?

- A. void
- B. word
- C. string
- D. short

ANSWER: D

143. Which of the following is not a pre-defined function in Arduino?

- A. detachInterrupt()
- B. bit()
- C. delaymicroseconds()
- D. noTone()

ANSWER: C

144. one growing area in robotics is developing new ways for robots to _____.

- A. attain more human appearance
- B. excel in athletic performance
- C. consume energy
- D. solve problems

ANSWER: D

145. Technology has advanced so much in the last 20 years that automation has become _____.

- A. entertaining
- B. monotonous
- C. invisible
- D. too easy

ANSWER: C

146. What are the three common criteria to determine robot use?

- A. employee laziness, job annoyance
- B. lack of worker motivation, personnel absenteeism
- C. dangerous job, heavy lifting, high accuracy required
- D. happy work environment formed, management recreation extended

ANSWER: C

147. which of the following are the two advantages of using robotics technology?

- A. reduced labor costs and predictable output
- B. improved interaction and communication

- C. enhanced contact and interplay
- D. increased lounging and relaxation

ANSWER: A

148. which of the following is not a basic component of a robotics system?

- A. power supply
- B. arm
- C. laser rod
- D. controllers

ANSWER: C

149. Two of the most common ways of classifying robots are _____.

- A. complexity and simplicity
- B. physical characteristics and work envelope
- C. motion and speed
- D. hydraulic and pneumatic

ANSWER: B

150. Robots fit into _____ two categories.

- A. hard automation and soft automation
- B. reprogrammable and multipurpose
- C. manipulative and directional
- D. industrial and commercial

ANSWER: A

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