BRANCH: MECHANICAL (*6TH SEM*)

SUB: ADVANCE MANUFACTURING & CAD/CAM

QUESTION TYPE: MCQ (*CHAPETR WISE*)

NON CONVENTIONAL MACHINING PROCESS

1. Which of the following holds true about electro-chemical machining?

a) Material is removed from the cathode and deposited on the anode

b) Material is removed from the anode and carried away by the electrolyte

c) Major drawback is that the finished product has residual stresses

d) It can also be used for all non-metals

Answer: a

2. ECM process is based on which of the following laws?

a) Coulomb's law

b) Faraday's law

c) Law of definite proportions

d) Law of chemical combination

Answer: b

3. Which of the following conditions are desirable for ECM?

a) High value DC and low value electric potential

b) Low value DC and high value electric potential

c) High value DC and high value electric potential

d) Low value DC and low value electric potential

Answer: a

4. In ECM, material removal rate does not depend on chemical properties of the anode material.

a) True

b) False

Answer: b

5. Which of the following materials can be used for making work holding devices?

a) Steel

b) Rubber

c) Graphite fibres

d) Wood

Answer: c

6. In ECM, shape of the cathode does not affect the shape of the machined product.

a) True

b) False

Answer: b

7. Which of the following is true about ECM process?

a) Unable to machine high strength materials

b) Excessive tool wear

c) It gives burr free surface

d) Surface hardness of the workpiece gets reduced

Answer: c.

8. Tool used in ECM should have higher rigidity.

a) True

b) False

Answer: a

9. The tool in ECM should have which of the following properties?

a) High machinability

b) Lower corrosion rate

c) High softness

d) High conductive resistance

Answer: a.

10. For ECM, tool dimensions are different from the actual mirror dimensions of the part to be machined.

a) True

b) False

Answer: a

1. Electro-chemical machining is opposite of electrochemical coating.

a) True

b) False

Answer: a

2. ECM can also be called as un-controlled anodic dissolution.

a) True

b) False

Answer: b

3. For ECM of steel which is used as the electrolyte?

a) Kerosene

b) NaCl

c) Deionised water

d) HNO_3

Answer: b

4. MRR is ECM depends on _____

a) hardness of work material

b) atomic weight of work material

c) thermal conductivity of work material

d) ductility of work material

Answer: b

5. For which of the following ECM cannot be undertaken?

a) Steel

b) Nickel based superalloy

c) Aluminium oxide

d) Titanium alloy

Answer: c

6. Commercial ECM is carried out at a combination of _____

a) low voltage high current

b) low current low voltage

c) high current high voltage

d) high voltage only

Answer: a

7. In ECM of pure iron a material removal rate of 600 mm3 /min is required. What will be the current requirement?

a) 157A

b) 183.6A

c) 247.8A

d) 268.8A

Answer: d

8. In ECM operation of pure iron an equilibrium gap (h) of 2 mm is to be kept. What will be the supply voltage (v), if the total overvoltage is 2.5 Volts. The resistivity(r) of the electrolyte is 50 Ω-mm and the set feed rate (f) is 0.25 mm/min.

a) 5v

b) 7.8v

c) 11.3v

d) 13.2v

Answer: d

Explanation: h= c/f

Where, c= (v- overvoltage)*A/(F*ρ*r*v)

Therefore, c= (v-2.5)*56/(96500*7.8*10^{-3}*50*2)

c= (v-2.5)/1344.1

Now, h= c/f

2= [(v-2.5)/1344.1]/[0.25/60] Therefore, v= 13.2 volts.

9. In ECM, workpiece acts as a cathode.

a) True

b) False

Answer: a

10. Electrolyte used in ECM should have _____

a) high specific heat

b) lower resistance to film formation on the workpiece

c) higher viscosity

d) corrosive nature

Answer: a

11. In ECM, one needs to understand fluid flow while designing the tool for machining complex shapes.

a) True

b) False

Answer: a

12. Which of the following does not hold true about ECM?

a) ECM cell must avoid flutter and arcing

b) Part and the cathode must have adequate current-carrying capacity

c) Tool must have shape exactly same as that of the mirror image of the part

d) It gives burr free surface

Answer: c

13. For which of the following ECM cannot be used?

a) Tapering a predrilled hole in iron block

b) To make stepped hole is a nickel alloy

c) To generate ribs on metal surface

d) To machine Al_2O_3

Answer: d

14. Electrolyte should carry away the heat generated and products of the reaction.

a) True

b) False

Answer: a

15. Which of the following is not a desirable electrolyte property?

a) Low viscosity

b) High specific heat

c) Lower resistance to film formation on the workpiece

d) Non-corrosiveness

Answer: c

16. Electrolyte flow plays an important role in ECM.

a) True

b) False

Answer: a

17. Which of the following is a sludging type electrolyte?

a) NaOH solution

b) KOH solution

c) NaCl solution

d) $CuSO_4$ solution

Answer: c

18. Tool with an electrolyte supply slot leaves small ridge on the work.

a) True

b) False

Answer: a

19. The insulation in ECM should have_____

a) adhesion to the tool

b) roughness

c) high water absorption tendency

d) chemically active

Answer: a

20. Spraying or dipping method is used for applying insulation.

a) True

b) False

Answer: a

21. Which of the following does not hold true about ECM?

a) Lower current density leads to poor surface finish

b) Small gap between tool and the workpiece can cause short circuit

c) Gap between the tool and the workpiece doesn't affect the process parameters

d) MRR is dependent on feed rate and electrolyte composition

Answer: c

22. Pick the incorrect one from the following options.

a) Voltage across the cutting gap influences the current and the MRR

b) Higher voltage decreases the equilibrium machining gap

c) Increased current leads to electrolyte heating

d) ECM can be used for facing and turning complex 3D surfaces

Answer: b

23. Which of the following largely affects the MRR?

a) ECM cell size

b) Tool shape

c) Feed rate

d) Complexity of the product

Answer: c

24. Conductivity of the solution can be increased by_____

a) increasing the gap between the tool and the workpiece

b) increasing the temperature of the solution

c) increasing the concentration of the solution

d) using conductive workpiece

Answer: c

15. The velocity and the electrolyte flow through the gap is also an important parameter affecting the surface finish and MRR.

a) True

b) False

Answer: a

25. What does faraday's second law electrolysis state?

a) $W \propto Q$, where W= mass of substance deposited and Q= charge passed through the electrolyte

b) $w1/w2 = E1/E2$, where w1 and w2 = mass of different substances deposited, and E1 and E2 = their equivalent masses

c) Induced EMF = $- d\Phi / dt$

d) Force between two charge particles q1 and q2, F= kq1q2/r2

Answer: b

26. What is faraday's first law of electrolysis?

a) W∝T, where W= mass of substance deposited and T= temperature of the electrolyte

b) W∝K, where W= mass of substance deposited and K= ionisation constant of the electrolyte

c) W∝Q, where W= mass of substance deposited and Q= charge passed through the electrolyte

d) W∝ 1/Q, where W= mass of substance deposited and Q= charge passed through the electrolyte

Answer: c

27. In ECM, accuracy of the product is independent of the accuracy of the cathode tool.

a) True

b) False

Answer: b

28. Conductivity of the electrolyte is unaffected by the loss of hydrogen during electrolysis.

a) True

b) False

Answer: b

29. Which of the following manufacturing process is favourable for making tool for ECM?

a) Casting

b) Cold forging

c) Laser cutting

d) Shaping

Answer: b

30. Precipitate formation reduces the conductivity of the electrolyte solution.

a) True

b) False

Answer: a

31. Solubility of the reaction products increases with_____

a) increase in pressure of the electrolyte

b) increase in temperature of the electrolyte

c) increase in work-tool gap

d) decrease in temperature of the electrolyte

Answer: b

32. In order to obtain good results in ECM, _____

a) maximise polarization

b) allow rise in temperature of the electrolyte

c) removal of used electrolyte form the working gap

d) decrease the concentration of the electrolyte

Answer: c.

33. Increase in pressure of the electrolyte above atmospheric pressure is beneficial.

a) True

b) False

Answer: a

34. Which of the following material cannot be machined by EDM

(a) steel

(b) WC

(c) Titanium

(d) Glass

Answer: d

35. Which of the following is used as dielectric medium in EDM

(a) tap water

(b) kerosene

(c) NaCLsolution

(d) KOH solution

Answer: b

36. Tool should not have

(a) low thermal conductivity

(b) high machinability

(c) high melting point

(d) high specific heat

Answer: a

37. Mechanism of material removal in Electron Beam Machining is due to _____

a) mechanical erosion due to impact of high of energy electrons

b) chemical etching by the high energy electron

c) sputtering due to high energy electrons

d) melting and vaporisation due to the thermal effect of impingement of high energy electron

Answer: d

38. Electron beam machining is a/an _____ process

a) adiabatic

b) thermal

c) iso-thermal

d) isentropic

Answer: b

39. Electron beam machining is carried out in _____

a) high pressure vessel

b) thermally insulated area

c) vacuum

d) in a room at atmospheric pressure

Answer: c

40. During EBM _____ is kept under vacuum.

a) electron gun

b) whole setup

c) the workpiece

d) laser generation setup

Answer: c

41. As the electrons strike the work material _____

a) heat energy is converted to kinetic energy

b) atomic energy is converted to heat energy

c) kinetic energy is converted to heat energy

d) electrical energy is converted to heat energy

Answer: c

42. The gun in EBM is used in _____ mode.

a) wave guide

b) biasing

c) pulsed

d) high intensity

Answer: c

43. Which of the following is not a function of electron beam gun?

a) generation of electrons

b) accelerating the electrons

c) focusing the beam

d) absorbing the electron beam

Answer: d

44. _____ is used to make cathode for electron beam gun.

a) Aluminium

b) Rubidium

c) Molybdenum

d) Tantalum

Answer: d

45. Heating to a high temperature leads to thermo-ionic emission.

a) True

b) False

Answer: a

46. In the electron beam gun, cathode cartridge is highly negatively biased.

a) True

b) False

Answer: a

47. In electron beam machine, just after the cathode, there is/are _____

a) deflector coils

b) a magnetic lens

c) bias grid

d) port for vacuum gauge

Answer: c

48. Electron is accelerated by _____

a) cathode cartridge

b) electromagnetic coils

c) aperture

d) annular anode

Answer: d

49. _____ determines the mode of an electron beam.

a) Applied voltage

b) Operating pressure

c) Position of magnetic lens

d) The nature of biasing

Answer: d

50. After the anode, the electron beam passes through _____

a) cathode cartridge

b) deflector coils

c) bias grid

d) a series of lenses

Answer: d

51. In the electron beam gun, apertures _____

a) allow only convergent electrons to pass

b) absorb convergent electrons

c) allow divergent electrons to pass

d) accelerate the electron beam

Answer: a

51. In the final section of the electron beam gun, electron beam passes through the electromagnetic lens and deflection coil.

a) True

b) False

Answer: a

52. What is the purpose of a series of slotted rotating discs provided between the electron beam gun and the workpiece?

a) It increases the accuracy of the beam

b) It can increase the intensity of the beam (if needed)

c) It prevents power losses

d) It prevents vapour generated during machining to reach the gun

Answer: d

53. For alignment of the beam, _____ is provided.

a) a lens

b) a telescope

c) magnifier

d) microscope

Answer: b

54. The workpiece is mounted on a CNC table.

a) True

b) False

Answer: a

55. Level of vacuum within the gun is in the order of _____

a) 10^{-4} to 10^{-6} Torr

b) 10^{-1} to 10^{-3} Torr

c) $10^{-.0.65}$ to 10^{-1} Torr

d) 1 to 2 Torr

Answer: a

56. In electron beam gun, vacuum is achieved by _____

a) reciprocating pump

b) rotary pump only

c) combination of rotary pump and diffusion pump

d) combination of diffusion pump and vane pump

Answer: c

57. Diffusion pump is an _____

a) oil filter equipment

b) oil heater

c) oil cooler

d) oil collector

Answer: b

58. The oil coming out of diffusion pump is evacuated by a _____

a) screw pump

b) gear pump

c) rotary pump

d) piston pump

Answer: d

59. High velocity gets of oil vapour coming out of diffusion pump entrain _____ present within the gun.

a) water droplets

b) oil droplets

c) air molecules

d) hazardous gas molecules

Answer: b

60. Which of the following parameters do not affect the electron beam machining

process?

a) Accelerating voltage

b) Lens current

c) Spot size

d) Workpiece material

Answer: d

61. For the electron beam machining process, pulse duration for the electron beam is in range of____

a) 10 μs to 90 μs

b) 50 μs to 15 ms

c) 80 μs to 10 ms

d) 15 ms to 1 s

Answer: b

62. Beam current is in the range of _____

a) 50 μamp to 0.8 amp

b) 100 μamp to 10 amp

c) 200 μamp to 1 amp

d) 185 μamp to 1.5 amp

Answer: c

63. Increasing the beam current directly increases the _____

a) energy per pulse

b) accelerating voltage

c) spot size

d) lens current

Answer: a

64. In electron beam machining process, the energy density is controlled by spot size.

a) True

b) False

Answer: a

65. At higher energy densities, material removal rate is high.

a) True

b) False

Answer: a

66. Mechanism of material removal in Laser Beam Machining is due to _____

a) mechanical erosion due to impact of high of energy photons

b) electro-chemical etching

c) melting and vaporisation due to thermal effect of impingement of high energy laser beam

d) fatigue failure

Answer: c

67. Laser Beam is produced due to _____

a) spontaneous emission

b) stimulated emission followed by spontaneous emission

c) spontaneous emission followed by Spontaneous absorption

d) spontaneous absorption leading to “population inversion” and followed by stimulated emission

Answer: d

68. Which of the following processes does not use lasers?

a) Cladding

b) Alloying

c) Nitriding

d) Cutting

Answer: c

69. Lasers are also used for_____

a) riveting

b) nitriding

c) rapid prototyping

d) facing

Answer: c

70. Laser stands for light amplification by stimulated emission of radiation.

a) True

b) False

Answer: a

71. Laser beams can have power density upto _____

a) 1 kW/mm^2

b) 10 kW/mm^2

c) 1 MW/mm^2

d) 10 MW/mm^2

Answer: c

72. Laser causes a rapid substantial rise in _____ of the material.

a) local temperature

b) local pressure

c) indentation

d) cracks

Answer: a

73. At _____ temperature an atom is considered to be at ground level.

a) absolute zero

b) 0^oC

c) 100^oC

d) 100 K

Answer: a

74. The electrons at ground state can be excited to a higher state of energy by _____

a) increasing the pressure

b) lowering the energy

c) absorbing the energy

d) oxidising the atom

Answer: c

75. The geometry and radii of orbital paths of electrons depend on the presence of an electromagnetic field.

a) True

b) False

Answer: a

76. When coming back to normal state from excited state, electron releases _____

a) proton

b) anti-proton

c) positron

d) photon

Answer: d

77. In population inversion, no of electrons in _____ are more as compared to numbers of electrons in _____

a) quasi-stable state, ground state

b) meta-stable state, ground state

c) meta-stable state, quasi-stable state

d) mono-stable state, ground state

Answer: b

78. In laser beam machine, one end of the glass is_____

a) open

b) blocked with a 10% reflective mirror

c) blocked with a 75% reflective mirror

d) blocked with a 100% reflective mirror

Answer: d

79. In laser beam machining, electrons are excited by _____

a) high temperature steam

b) flash lamps

c) flash torch

d) cathode ray tube

Answer: b

80. The photons emitted in the _____ direction form a laser beam.

a) vertical

b) horizontal

c) longitudinal

d) lateral

Answer: c

81. How many types of lasers are there?

a) 2

b) 3

c) 4

d) 5

Answer: a

82. How many types of solid state lasers are there?

a) 2

b) 3

c) 4

d) 5

Answer: b

83. Lasers can be operated in _____ modes

a) 2

b) 7

c) 8

d) only one

Answer: a

84. Helium-Neon is a gas laser.

a) True

b) False

Answer: a

85. Flash tubes used for Nd-YAG laser can be helical or flat.

a) True

b) False

Answer: a.

86. The flash tube is operated in _____ mode.

a) pulsed

b) continuous

c) reversed

d) synchronous

Answer: a

87. How many types of flows are possible in gas lasers?

a) 2

b) 3

c) 4

d) 5

Answer: b

88. The power of CO_2 laser is around_____

a) 15 Watt per meter of tube length

b) 55 Watt per meter of tube length

c) 100 Watt per meter of tube length

d) 1 MW per meter of tube length

Answer: c

89. In a CO_2 laser, a mixture of _____ is circulated through the gas tube.

a) CO_2, N_2 and He

b) CO_2, N_2 and Ar

c) CO_2, H_2 and N_2

d) CO_2, I_2 and O_2

Answer: a

90.In CO_2 laser, 'He' gas is used for cooling purpose.

a) True

b) False

Answer: a

91. CO_2 lasers are folded to achieve _____

a) high power

b) high depth of cuts

c) high material removal rate

d) avoid over heating

Answer: a

92. Nd-YAG laser can be used for drilling holes in the range of _____ diameter.

a) 0.25 mm – 1.5 mm

b) 1 mm – 1.5 mm

c) 1.5 mm – 2 mm

d) 2 mm – 2.5 mm

Answer: a

93. For which of the following materials CO_2 laser is not used?

a) Plastics

b) Metals

c) Organic materials

d) Ceramics

Answer: b

94. Which of the following does not hold true about laser beam machining?

a) High initial cost

b) High running cost

c) No heat affected zone

d) It is not suitable for heat sensitive materials

Answer: c

95. Using lasers, large aspect ratio in drilling can be achieved.

a) True

b) False

Answer: a

96. AJM nozzles are made of

(a) low carbon steel

(b) HSS

(c) WC

(d) Stainless steel

Answer: c

97. Material removal in AJM of glass is around

(a) 0.1 mm^3/min

(b) 15 mm^3/min

(c) 15 mm^3/s

(d) 1500 mm^3/min

Answer: b

98. Material removal takes place in AJM due to

(a) electrochemical action

(b) mechanical impact

(c) fatigue failure of the material

(d) sparking on impact

Answer: b

99.As the stand off distance increases, the depth of penetration in AJM

(a) increases

(b) decreases

(c) does not change

(d) initially increases and then remains steady

Answer: b

100. Mechanism of material removal in Laser Beam Machining is due to _____

a) mechanical erosion due to impact of high of energy photons

b) electro-chemical etching

c) melting and vaporisation due to thermal effect of impingement of high energy laser beam

d) fatigue failure

Answer: c

101. Laser Beam is produced due to _____

a) spontaneous emission

b) stimulated emission followed by spontaneous emission

c) spontaneous emission followed by Spontaneous absorption

d) spontaneous absorption leading to “population inversion” and followed by stimulated emission

Answer: d

102. Which of the following processes does not use lasers?

a) Cladding

b) Alloying

c) Nitriding

d) Cutting

Answer: c

103. Lasers are also used for____

a) riveting

b) nitriding

c) rapid prototyping

d) facing

Answer: c

104. Laser stands for light amplification by stimulated emission of radiation.

a) True

b) False

Answer: a

105. Laser beams can have power density upto _____

a) 1 kW/mm^2

b) 10 kW/mm^2

c) 1 MW/mm^2

d) 10 MW/mm^2

Answer: c

106. Laser causes a rapid substantial rise in _____ of the material.

a) local temperature

b) local pressure

c) indentation

d) cracks

Answer: a

107. At _____ temperature an atom is considered to be at ground level.

a) absolute zero

b) $0^{o}C$

c) $100^{o}C$

d) 100 K

Answer: a

108. The electrons at ground state can be excited to a higher state of energy by _____

a) increasing the pressure

b) lowering the energy

c) absorbing the energy

d) oxidising the atom

Answer: c

109. The geometry and radii of orbital paths of electrons depend on the presence of an electromagnetic field.

a) True

b) False

Answer: a

CHAPTER CAD/CAM/CIM

1. CAD/CAM is the relationship between

a) science and engineering

b) manufacturing and marketing

c) design and manufacturing

d) design and marketing

Answer: c

2. The process in which the detailed specifications materials, dimensions, tolerances and surface rough is made is known as

a) decision process

b) analysis process

c) implementation process

d) refinement process

Answer: c

3. Which two disciplines are tied by a common database?

a) documentation and geometric modeling

b) CAD and CAM

c) drafting and documentation

d) none of the mentioned

Answer: b

4. The term that is used for geometric modelling like solid modelling, wire frame modelling and drafting is known as

a) software package

b) operating system

c) application software

d) none of the mentioned

Answer: a

5. The system environment in a mainframe computer consists of

a) central processing

b) storage devices

c) printers and plotters

d) both central processing and storage devices

Answer: d

6. The nerve center or brain of any computer system is known as

a) CPU

b) Storage device

c) ALU

d) Monitor

Answer: a

7. Locating devices are classified as

a) text input device

b) graphic device

c) all of the mentioned

d) none of the mentioned

Answer: b

8. A potentiometric device that contains sets of variable registers which feed signals that indicate the device position to the computer is known as

a) track ball

b) mouse

c) joystick

d) all of the mentioned

Answer: c

9. Which of the following devices do not produce a hard copy?

a) impact printers

b) plotters

c) CRT terminals

d) non-impact printers

Answer: c

10. The software that is used to control the computer's work flow, organize its data and perform house keeping functions is known as

a) operating software

b) graphics software

c) application software

d) programming software

Answer: a

11. The software that is used to provide the users with various functions to perform geometric modelling and construction is known as

a) operating software

b) graphics software

c) application software

d) programming software

Answer: b

12. The software that performs the data entry, design, analysis, drafting and manufacturing functions is known as

a) operating software

b) graphics software

c) application software

d) programming software

Answer: c

13. The software that enables the to implement custom application or modify the system for specialized needs is known as

a) operating software

b) graphics software

c) application software

d) programming software

Answer: d

14. Following is not an operating system software

a) Windows

b) UNIX

c) VAX/VMS

d) IDEAS

Answer: d

15. The basic geometric building blocks provided in a CAD/CAM package are

a) points

b) lines

c) circles

d) all of the mentioned

Answer: d

CNC/NC

1. During the execution of a CNC part program block NO20 GO2 X45.0 Y25.0 R5.0 the type of tool motion will be

a) circular Interpolation – clockwise

b) circular Interpolation – counterclockwise

c) linear Interpolation

d) rapid feed

Answer: a

Explanation: Given:-NO20 GO2 X45.0 Y25.0 R5.0

Here term X45.0 Y25.0 R5.0 will produce circular motion because radius is consider in this term and GO2 will produce clockwise motion of the tool.

2. In an NC machining operation, the tool has to be moved from point (5, 4) to point (7, 2) along a circular path with centre at (5, 2). Before starting the operation, the tool is at (5, 4). The correct G and N codes for this motion are

a) N010GO3X7.0Y2.0I5.0J2.0

b) N010GO2X7.0Y2.0I5.0J2.0

c) N010GO1X7.0Y2.0I5.0J2.0

d) N010GOOX7.0Y2.0I5.0J2.0

Answer: b

Explanation: Given : Initial point (5, 4), Final point (7, 2), Centre (5, 4)

So, the G, N codes for this motion are N010GO2X7.0Y2.0 15.0J2.0

where, GO2 ” Clockwise circular interpolation

X7.0Y2.0 ” Final point

I5.0J2.0 ” Centre point.

3. The tool of an NC machine has to move along a circular arc from (5, 5) to (10, 10) while performing an operation. The centre of the arc is at (10, 5). Which one of the following NC tool path command performs the above mentioned operation?

a) N010 GO2 X10 Y10 X5 Y5 R5

b) N010 GO3 X10 Y10 X5 Y5 R5

c) N010 GO1 X5 Y5 X10 Y10 R5

d) N010 GO2 X5 Y5 X10 Y10 R5

View Answer

Answer: a

Explanation: N010 “represent start the operation

GO2 “represent circular (clock wise) interpolation

X10Y10 “represent final coordinates

X5Y5 “represent starting coordinate

R5 “represent radius of the arc

So, NC tool path command is, N010 GO2 X10 Y10 X5 Y5 R5.

4. NC contouring is an example of

a) continuous path positioning

b) point-to-point positioning

c) absolute positioning

d) incremental positioning

Answer: a

5. Match the following:

NC code Definition

P. M05 1. Absolute coordinate system

Q. G01 2. Dwell

R. G04 3. Spindle stop

S. G09 4. Linear interpolation

a) P-2, Q-3, R-4, S-1

b) P-3, Q-4, R-1, S-2

c) P-3, Q-4, R-2, S-1

d) P-4, Q-3, R-2, S-1

Answer: c

Explanation: NC code Definition

P. M05 3. Spindle stop

Q. G01 4. Linear interpolation

R. G04 2. Dwell

S. G09 1. Absolute coordinate system

So, correct pairs are, P-3, Q-4, R-2, S-1.

6. In a CNC program block, N002 GO2 G91 X40 Z40……,GO2 and G91 refer to

a) circular interpolation in counterclockwise direction and incremental dimension

b) circular interpolation in counterclockwise direction and absolute dimension

c) circular interpolation in clockwise direction and incremental dimension

d) circular interpolation in clockwise direction and absolute dimension

Answer: c

7. Numerical control _____

a) applies only to milling machines

b) is a method for producing exact number of parts per hour

c) is a method for controlling by means of set of instructions

d) none of the mentioned

Answer: c

8. Computer will perform the data processing functions in

a) NC

b) CNC

c) DNC

d) None of the mentioned

Answer: b

9. Control loop unit of M.C.U is always

a) a hardware unit

b) a software unit

c) a control unit

d) none of the mentioned

Answer: a

10. The repeatability of NC machine depends on

a) control loop errors

b) mechanical errors

c) electrical errors

d) none of the mentioned

Answer: b

11. Rotation about Z-axis is called

a) a-axis

b) b-axis

c) c-axis

d) none of the mentioned

Answer: c

12. Rotation of spindle is designated by one of the following axis:

a) a-axis

b) b-axis

c) c-axis

d) none of the mentioned

Answer: d

13. The linking of computer with a communication system is called

a) networking

b) pairing

c) interlocking

d) assembling

Answer: a

14. The process of putting data into a storage location is called

a) reading

b) writing

c) controlling

d) hand shaking

Answer: b

15. The process of copying data from a memory location is called

a) reading

b) writing

c) controlling

d) hand shaking

View Answer

Answer: a

ROBOT TECHNOLOGY

Robots are not creative?

a) True b) False

Answer: a

Robots can make complicated decision?

a) True b) False

Answer: b

Robots don't think independently?

a) True b) False

Answer: a

Welding application is the least common application of industrial robots?

a) True b) False

Answer: b

Assembly is the final stage of manufacturing and it is manual labor intensive?

a) True b) False

Answer: a

Assembly means fitting two or more discrete parts together to form a new product?

a) True b) False

Answer: a

To perform the inspection tasks of robot requires sensors or which system?

a) Vision b) Assembling c) manufacturing d) production

Answer: a

The main advantage of robotics is?

a) Reliability b) Increased flexibility c) Low cost in long run d) All of these

Answer: d

A machine can be quality as a robot subject to which of the following condition?

a) reprogrammable b) Sensing c) function autonomously d) Carry out different tasks

e) All of the above

Answer: e

Which of the following drives are clean and quiet with a high degree of accuracy and reliability?

a) Pneumatic b) Hydraulic c) Electric d) All of the these

Answer: c

Which of the following configurations has 3 manual perpendicular axis?

a) Cartesian coordinate configuration b) Cylindrical configuration

c) Spherical configuration d) None of the these

Answer: a

In which of the following configuration, there is a telescope arm which pivots about a horizontal axis and rotates about a vertical axis ?

a) Jointed arm configuration b) Cylindrical configuration

c) Spherical configuration d) None of the these

Answer: b

1. Wrist motion of y involves

a) right to left rotation of the object

b) up and down rotation of the object

c) twisting of the object about the arm axis

d) none of the mentioned

Answer: a

2. Robots are specified by

a) pay load

b) dimension of work envelope

c) degree of freedom

d) all of the mentioned

Answer: d

3. Hydraulic drives are used for a robot when

a) high torque is required

b) high power is required

c) rapid motion of robot arm

d) all of the mentioned

Answer: d

4. The following type of robot is most suitable for pick and place operations

a) rectangular

b) cylindrical

c) spherical

d) jointed arm type

Answer: a

5. A computer program that contains expertise in a particular domain is called an

a) automatic processor

b) intelligent planner

c) expert system processor

d) operations symbolizer

Answer: c

6. The knowledge base of an expert system includes both facts and

a) theories

b) heuristics

c) algorithms

d) analysis

Answer: b

7. A robot's arm is also known as its

a) actuator

b) end effector

c) manipulator

d) servomechanism

Answer: c

8. Which type of actuator generates a good deal of power but tends to be messy?

a) electric

b) hydraulic

c) pneumatic

d) none of the mentioned

Answer: b

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

a) intelligent

b) mobile

c) non servo

d) open loop

Answer: a

10. Programming a robot by physically moving it through the trajectory you want it to follow is called

a) contact sensing control

b) continuous path control

c) pick and place control

d) robot vision control

Answer: b

11. Reasoning from a goal state towards an initial state is called

a) backward chaining

b) bidirectional

c) breadth first

d) heuristic

Answer: a

AUTOMATION

12. Which device is mostly associated with automation?

a) flexible manufacturing

b) robots

c) computer graphics workstation

d) NC machine

Answer: b.

13. Choose the basic element for an automated machine tool

a) logic

b) NC tape programming

c) software

d) workstation

Answer: a

14. Choose the robot component from the following

a) micro computer

b) coaxial cable

c) arm

d) software

Answer: c

15. A configuration for a robot is

a) octagonal

b) oblong

c) square

d) spherical

Answer: d