1. A thin metallic wire used in wire-cut EDM is kept submerged in a tank of \_\_\_\_\_  
a) dielectric fluid  
b) pure water  
c) molten metal  
d) kerosene  
View Answer

2. Wire-cut EDM can cut plates of thickness upto \_\_\_\_\_  
a) 50mm  
b) 100mm  
c) 300mm  
d) 500mm  
View Answer

3. In WEDM, the wire is held tight between\_\_\_\_\_  
a) upper and lower nozzles  
b) upper and lower diamond guides  
c) upper and lower groves in the handle  
d) upper and lower pulleys  
View Answer

4. The upper guide can move independently about\_\_\_\_\_  
a) x-axis  
b) y-axis  
c) x-y-w axes  
d) z-u-v axes  
View Answer

5. In the wire-cut EDM process, de-ionizing units are used for controlling the \_\_\_\_\_  
a) feed rate  
b) resistivity  
c) burr formation  
d) temperature of the wire  
View Answer

6. In the wire-cut EDM process, water is also used for \_\_\_\_\_  
a) cooling  
b) increasing the feed rate  
c) flushing away the burr  
d) controlling the cutting speed  
View Answer

7. The WEDM process requires \_\_\_\_\_  
a) lower initial investment  
b) lesser cutting forces  
c) a skilled operator  
d) a coolant pump  
View Answer

8. The materials which are not stress-relieved before machining by WEDM process can get distorted during machining.  
a) True  
b) False  
View Answer

9. During the WEDM process, workpiece undergoes a number of thermal cycles.  
a) True  
b) False  
View Answer

10. Electrically conductive materials are cut by WEDM process by \_\_\_\_\_ mechanism.  
a) thermal  
b) electro-thermal  
c) electro-dynamic  
d) fused metal

11. In wire-cut EDM process, material removal takes place by a series of discrete discharges between \_\_\_\_\_  
a) di-electric fluid and the wire electrode  
b) the wire-electrode and the workpiece  
c) the workpiece and the CNC-table  
d) wire electrodes  
View Answer

12. The di-electric fluid gets ionizes in between \_\_\_\_\_ gap.  
a) tool-electrode  
b) cathode-anode  
c) workpiece-electrode  
d) tool-workpiece  
View Answer

13. The burr or cut particles are flushed away by the\_\_\_\_\_\_  
a) electrode  
b) motion of the workpiece  
c) di-electric fluid  
d) coolant  
View Answer

14. Wire-cut EDM (WEDM) process is widely used for \_\_\_\_\_  
a) alloy steels  
b) tool steels  
c) stainless steels  
d) carbon steels  
View Answer

15. For which of the following materials wire-cut EDM is not used?  
a) Aluminium  
b) Zirconium  
c) Steels  
d) Titanium  
View Answer

16. WEDM process can be used for cutting hard extrusion dies.  
a) True  
b) False  
View Answer

17. WEDM process can be used for manufacturing of micro-tools.  
a) True  
b) False  
View Answer

18. How many subsystems are there in wire-cut EDM process?  
a) 2  
b) 3  
c) 4  
d) 5  
View Answer

19. Di-electric system used in WEDM process is similar to that of the \_\_\_\_\_ process.  
a) conventional drilling  
b) conventional milling  
c) conventional EDM  
d) broaching  
View Answer

20. In wire-cut EDM, a moving wire is used to \_\_\_\_\_  
a) remove the burr  
b) cut complex outlines  
c) melt the material  
d) make the way for the di-electric fluid  
View Answer

21. In electro-chemical grinding, grinding wheel is used as a cathode.  
a) True  
b) False  
View Answer

22. ECG is suitable for which of the following materials?  
a) Tungsten carbide  
b) Polymers  
c) Iron  
d) Nickel  
View Answer

23. In ECG, grinding action removes \_\_\_\_\_\_\_\_\_\_\_\_  
a) workpiece material from the surface  
b) corroded surface layer making workpiece ready for electro-chemical process  
c) oxide film formed on the surface  
d) particles removed from surface after chemical action  
View Answer

24. As compared to electrochemical machining (ECM), ECG consumes less power.  
a) True  
b) False  
View Answer

25. Nozzles are used to \_\_\_\_\_\_\_\_\_\_\_\_\_  
a) spray coolant on the wheel  
b) ensure proper wetting of the wheel  
c) spray chemical directly on the work piece  
d) nozzles are not used in ECG  
View Answer

26. In ECG, rate of formation of oxide film is faster than that in ECM.  
a) True  
b) False  
View Answer

27. Electrolyte in ECG should provide \_\_\_\_\_\_\_\_\_\_\_\_\_  
a) lower chemical activity  
b) allowance to stray currents  
c) high stock removal efficiency  
d) higher corrosion tendency  
View Answer

28. Which of the following is true for ECG?  
a) Higher the grinding wheel rpm, higher is the MRR  
b) Higher the current density, faster the removal rate  
c) Stronger the electrolyte, poor surface finish  
d) Higher the hardness of the workpiece, lower the current density required  
View Answer

29. Feed rates in ECG vary with a grinding method.  
a) True  
b) False  
View Answer

30. Which of the following is true about ECG?  
a) Lower MRRs when grinding hard, heat sensitive materials  
b) Machining of soft metals like aluminium can be easily done  
c) Difficult to machine materials with high hardness like tungsten carbide  
d) Burr-free sharpening of needles

31. 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  
View Answer

32. 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  
View Answer

33. 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  
View Answer

34. In ECM, material removal rate does not depend on chemical properties of the anode material.  
a) True  
b) False  
View Answer

35. Which of the following materials can be used for making work holding devices?  
a) Steel  
b) Rubber  
c) Graphite fibres  
d) Wood  
View Answer

36. In ECM, shape of the cathode does not affect the shape of the machined product.  
a) True  
b) False  
View Answer

37. 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  
View Answer

38. Tool used in ECM should have higher rigidity.  
a) True  
b) False  
View Answer

39. 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  
View Answer

40. For ECM, tool dimensions are different from the actual mirror dimensions of the part to be machined.  
a) True  
b) False  
View Answer

41. In ECM, one needs to understand fluid flow while designing the tool for machining complex shapes.  
a) True  
b) False  
View Answer

42. 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  
View Answer

43. 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 Al2O3  
View Answer

44. Electrolyte should carry away the heat generated and products of the reaction.  
a) True  
b) False  
View Answer

45. 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  
View Answer

46. Electrolyte flow plays an important role in ECM.  
a) True  
b) False  
View Answer

47. Which of the following is a sludging type electrolyte?  
a) NaOH solution  
b) KOH solution  
c) NaCl solution  
d) CuSO4 solution  
View Answer

48. Tool with an electrolyte supply slot leaves small ridge on the work.  
a) True  
b) False  
View Answer

49. The insulation in ECM should have\_\_\_\_\_  
a) adhesion to the tool  
b) roughness  
c) high water absorption tendency  
d) chemically active  
View Answer

50. Spraying or dipping method is used for applying insulation.  
a) True  
b) False  
View Answer

51. 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  
View Answer

52. 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  
View Answer

53. Which of the following largely affects the MRR?  
a) ECM cell size  
b) Tool shape  
c) Feed rate  
d) Complexity of the product  
View Answer

54. 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  
View Answer

55. The velocity and the electrolyte flow through the gap is also an important parameter affecting the surface finish and MRR.  
a) True  
b) False

56. What does faraday’s second law electrolysis state?  
a) W∝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 = – dΦ / dt  
d) Force between two charge particles q1 and q2, F= kq1q2/r2  
View Answer

57. 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  
View Answer

58. In ECM, accuracy of the product is independent of the accuracy of the cathode tool.  
a) True  
b) False  
View Answer

59. Which of the following materials can be used for making cathode tool?  
a) Monel  
b) Cast iron  
c) Lead  
d) Carbides  
View Answer

60. Conductivity of the electrolyte is unaffected by the loss of hydrogen during electrolysis.  
a) True  
b) False  
View Answer

61. Which of the following manufacturing process is favourable for making tool for ECM?  
a) Casting  
b) Cold forging  
c) Laser cutting  
d) Shaping  
View Answer

62. Precipitate formation reduces the conductivity of the electrolyte solution.  
a) True  
b) False  
View Answer

63. 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  
View Answer

64. 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  
View Answer

65. Increase in pressure of the electrolyte above atmospheric pressure is beneficial.  
a) True  
b) False

66. There is a huge change in the mechanical properties of the material after ECM.  
a) True  
b) False  
View Answer

67. \_\_\_\_\_ strength of stainless steel decreases when machined by ECM.  
a) Yield  
b) Tensile  
c) Fatigue  
d) Notched-tensile  
View Answer

68. In ECM, electrode or tooling cost is fixed because\_\_\_\_\_  
a) there is little wear of the tool  
b) tool can be used only once  
c) tool can be regenerated  
d) one tool can be used for any product  
View Answer

69. Sharp change in tool geometry or sharply divergent flow path affects the surface finish of the product.  
a) True  
b) False  
View Answer

70. Striation, ripples on work surface occur because of \_\_\_\_  
a) differential machining of material phases  
b) incorrect tool alignment  
c) cavitation  
d) electrical field concentration of machining current  
View Answer

71. Foreign particle in electrolyte or insulation failure within tool can cause\_\_\_\_\_  
a) random inaccuracy in work  
b) ripples on work  
c) cavitation  
d) spark damage to work  
View Answer

72. Composition of a Nickel superalloy is as follows: Ni = 70.0%, Cr = 20.0%, Fe = 5.0% and rest Titanium. What will be the rate of dissolution if the area of the tool is 1500 mm2 and a current of 1000 A is being passed through the cell? Assume dissolution to take place at lowest valency of the elements.  
ANi = 58.71 ρNi = 8.9 νNi = 2  
ACr = 51.99 ρCr = 7.19 νCr = 2  
AFe = 55.85 ρFe = 7.86 νFe = 2  
ATi = 47.9 ρTi = 4.51 νTi = 3  
a) 2.14 cc/min  
b) 3.14 cc/min  
c) 4.25 cc/min  
d) 1.66 cc/min  
View Answer

73. Discrepancies are sometimes observed between theoretical and actual metal removal rates and electrode feed rates.  
a) True  
b) False  
View Answer

74. There is a limit to the minimum cross-section of the current carrying parts.  
a) True  
b) False  
View Answer

75. Which of the following is suitable if work surface finish is important?  
a) High machining voltage  
b) High concentration  
c) Larger gap  
d) High current