1. Friction welding produces welds due to \_\_\_\_\_\_  
a) electrode melting  
b) workpiece melting  
c) relative motion between workpieces  
d) adhesive force between workpiece particles  
View Answer

2. In friction welding, material is deformed due to\_\_\_\_\_  
a) elastic deformation  
b) plastic deformation  
c) ductile deformation  
d) brittle deformation  
View Answer

3. Which of the following is true about friction welding?  
a) One workpiece is held stationary while the other is moving  
b) Both the workpieces are moving  
c) Both the workpieces are stationary and filler is added in the space between them  
d) The material is deformed elastically  
View Answer

4. During friction welding, initially low pressure is applied. Why?  
a) For slowly increasing the surface temperature  
b) For melting the surface coating on the materials  
c) To check weldabilty of two materials  
d) For initial cleaning of the surface  
View Answer

5. After the welding temperature is reached \_\_\_\_\_  
a) rotation is stopped  
b) speed of rotation is increased  
c) rotation of first workpiece is stopped and second workpiece starts rotating  
d) filler material is added  
View Answer

6. By friction welding, steel bars upto \_\_\_\_\_ mm diameter can be welded.  
a) 10  
b) 50  
c) 100  
d) 210  
View Answer

7. Inertia welding is a modified form of friction welding.  
a) True  
b) False  
View Answer

8. Which of the following is not true about inertia welding?  
a) Weld is formed when the flywheel stops  
b) The process is difficult for automation  
c) Weld quality is consistent  
d) Parts remain in contact even after the weld is completed  
View Answer

9. During friction welding, shielding gases are needed.  
a) True  
b) False  
View Answer

10. Which of the following is not true?  
a) Oxides can be removed after the welding process  
b) Automation is possible  
c) Rapid welds are made  
d) Process can be used for limited materials  
View Answer

11.Ultrasonic machining (USM) can be classified as which of the following type of non-traditional machining process?  
a) electrical  
b) optical  
c) mechanical  
d) chemical  
View Answer

12. Which of the following material is not generally machined by USM?  
a) Copper  
b) Glass  
c) Silicon  
d) Germanium  
View Answer

13. Tool in USM is generally made from which of the following materials?  
a) Glass  
b) Ceramic  
c) Carbides  
d) Steel  
View Answer

14. Under what frequency ultrasonic machining is done?  
a) 5—10 Hz  
b) 5—10 kHz  
c) 12—19 Hz  
d) 19—25 kHz  
View Answer

15. In ultrasonic machining (USM), the tool is pressed downward.  
a) True  
b) False  
View Answer

16. In ultrasonic machining, the abrasive particles act as the \_\_\_\_\_\_\_\_\_\_  
a) chip carriers  
b) intenders  
c) finishing particles  
d) thickening agent for the slurry  
View Answer

17. In case of brittle materials, the material is removed by crack initiation.  
a) True  
b) False  
View Answer

18. During USM, cracks are produced due to \_\_\_\_\_  
a) von-mises stresses  
b) hertzian stresses  
c) principal stresses  
d) episodic acute stresses  
View Answer

19. In USM, material removal may occur due to \_\_\_\_\_  
a) fatigue failure  
b) fouling failure  
c) free flowing impact of the abrasive  
d) creep  
View Answer

20. Increasing volume concentration of abrasive in slurry would affect MRR in which of the following manner?  
a) increase MRR  
b) decrease MRR  
c) would not change MRR  
d) initially decrease and then increase MRR  
View Answer

21. Laser beam welding is a \_\_\_\_\_\_ joining process.  
a) fission  
b) fusion  
c) coherent  
d) plastic  
View Answer

22. Which of the following is used to direct laser beam?  
a) glass apertures  
b) perforated glass sheets  
c) flat optical elements  
d) electro-magnetic coils  
View Answer

23. Inert gas shielding is generally employed to protect \_\_\_\_\_  
a) laser beam  
b) molten puddle of metal  
c) filler electrode  
d) lenses  
View Answer

24. Which of the following is a commercially used laser?  
a) Nd-GAG laser  
b) 1.06 µm wavelength CO2 laser  
c) 2 µm wavelength CO2 laser  
d) Nd- YAS laser  
View Answer

25. In solid state laser \_\_\_\_\_ is used as a dopant.  
a) actinium ion  
b) neodymium ion  
c) platinum ion  
d) lead ion  
View Answer

26. The lasing material is a cylinder of a diameter of about \_\_\_\_\_ mm.  
a) 5  
b) 9  
c) 17  
d) 20  
View Answer

27. The lasing material or crystal is excited by \_\_\_\_\_  
a) neon lamps  
b) krypton lamps  
c) tungsten wire laps  
d) CFLs  
View Answer

28. Which of the following laser is the most efficient?  
a) CO2 lasers  
b) Nd-YAG lasers  
c) Ruby lasers  
d) Dye lasers  
View Answer

29. CO2 lasers employs gas mixture of \_\_\_\_\_  
a) nitrogen and helium  
b) hydrogen and helium  
c) argon and xenon  
d) oxygen and nitrogen  
View Answer

30. Gas heating produced by gas lasers is controlled by \_\_\_\_\_  
a) coolant  
b) a blow of cool air  
c) adjusting the wavelength of the laser  
d) circulating the gas mixture  
View Answer

31. How many categorize are there of CO2 lasers?  
a) 2  
b) 3  
c) 4  
d) 5  
View Answer

32. Slow axial flow gas lasers are simplest of the CO2 lasers.  
a) True  
b) False  
View Answer

33. Solid axial flow CO2 lasers can generate laser beams with a constant rating of 80 Watts.  
a) True  
b) False  
View Answer

34. \_\_\_\_\_\_ is used to circulate the laser gas in case of fast axial flow gas laser.  
a) Compressor  
b) Turbo pump  
c) Guide vanes  
d) Vane pump  
View Answer

35. Fast axial flow gas lasers are available between \_\_\_\_\_ watts power levels.  
a) 10-100  
b) 50-500  
c) 500-6000  
d) 6000-7000  
View Answer

36.. In transverse flow type gas lasers, gas is circulated across \_\_\_\_\_  
a) the resonator cavity axis  
b) optical axis  
c) deflection coils  
d) the focusing lens  
View Answer

37. In case of laser welding, heat input is \_\_\_\_\_ to fuse the weld metal.  
a) equal to the required amount  
b) close to the minimum required  
c) greater by 200 J than required  
d) approximately higher by atleast 320 J  
View Answer

38. Which of the following holds true about laser welding process?  
a) Time for welding thick sections is more in case of LBW  
b) Shielding gas is used to melt the burr formed during the machining  
c) In LBW, sometimes filler metals are used  
d) In Nd- YAG lasers, crystals of C14 are used as the lasing material  
View Answer

39. Laser welding is performed with freedom from electrode contamination.  
a) True  
b) False  
View Answer

40. Which of the following does not hold true about laser beam welding?  
a) Laser welding cannot be used in case of joints at intricate locations  
b) It can produce tiny welds  
c) Laser welding can be used for a variety of metal combinations  
d) In case of LBW, thin welds on small diameter wires are less susceptible to burn back  
View Answer

41. Laser welds are not influenced by \_\_\_\_\_  
a) electric field  
b) magnetic field  
c) radio waves  
d) ultraviolet rays  
View Answer

42. Aspect ratios, i.e., depth-to-width ratios of the order of \_\_\_\_\_ are attainable by LBW.  
a) 1:2  
b) 5:10  
c) 10:1  
d) 15:1  
View Answer

43. Weld penetrations of larger than \_\_\_\_\_ are difficult to weld by LBW.  
a) 5 mm  
b) 13 mm  
c) 19 mm  
d) 25 mm  
View Answer

44. Which of the following material properties has no effect on laser beam machining?  
a) Reflectivity  
b) Thermal conductivity  
c) Weldability  
d) Electrical conductivity  
View Answer

45. Lasers tend to have fairly low energy conversion efficiency.  
a) True  
b) False  
View Answer

46.How many types of welding modes are there in laser beam welding?  
a) 2  
b) 3  
c) 4  
d) 5  
View Answer

47. Conduction mode welding is performed at \_\_\_\_\_ energy density.  
a) high  
b) medium  
c) low  
d) any  
View Answer

48.. The penetration or keyhole mode welding is characterized by \_\_\_\_\_\_  
a) shallow welds  
b) narrow welds  
c) irregular welds  
d) nuggets of welds  
View Answer

49. In penetration mode, a filament of vaporized material formed by laser light known as a \_\_\_\_\_  
a) keyslot  
b) keyhole  
c) groove  
d) burr  
View Answer

50. In conduction welding, the laser beam is focused to a power density of order of \_\_\_\_\_ W/mm2.  
a) 101  
b) 102  
c) 103  
d) 104  
View Answer

51. Conduction welding has \_\_\_\_\_ modes.  
a) single  
b) 2  
c) 3  
d) 4  
View Answer

52. The first conduction welds were made using \_\_\_\_\_ lasers.  
a) Nd-YAG  
b) ruby  
c) polymer lasers  
d) semiconductor lasers  
View Answer

53. In direct heat conduction welding, heat flow is controlled by a conventional thermal conduction method.  
a) True  
b) False  
View Answer

54. Conduction welds can be made in a wide range of metals and alloys in the form of wires and thin sheets.  
a) True  
b) False  
View Answer

55. Transmission welding is used for joining \_\_\_\_\_  
a) aluminium alloys  
b) cast iron to wrought iron  
c) polymers  
d) components made of copper  
56. Which of the following material properties should match before joining to components by a transmission welding method.  
a) Electrical properties  
b) Thermal properties  
c) Weldability  
d) Tensile strength  
View Answer

57. Transmission welding mode is used for materials that\_\_\_\_\_\_  
a) transmits near infrared radiation  
b) have high heat capacities  
c) have lower melting points  
d) absorbs infrared radiations  
View Answer

58. In transmission welding mode, absorbing ink is placed at the interface of a lap joint for \_\_\_\_\_  
a) absorbing the laser beam energy  
b) cooling the work metal  
c) protecting the weld puddle  
d) reducing the process time  
View Answer

59. Butt welds can be made using transmission mode of conduction welding by \_\_\_\_\_  
a) melting the outer surfaced of the joint  
b) directing the energy towards the joint  
c) applying ink to the joining surface before welding  
d) using filler material  
View Answer

60. In which of the following processes, the laser beam is used to melt a filler addition?  
a) Laser drilling  
b) Laser cutting  
c) Laser welding  
d) Laser soldering  
View Answer

61. Penetration welding is characterised by \_\_\_\_\_  
a) tapered trail  
b) irregularities in the weld  
c) parallel sided fusion zone  
d) planner welds  
View Answer

62. Laser welding efficiency can be calculated by formula \_\_\_\_\_  
a) Velocity\*thickness/power  
b) Velocity\*power/thickness  
c) Power\*thickness/velocity  
d) Velocity\*thickness\*power  
View Answer

63. The heat source intensity for laser beam welding lies in the range \_\_\_\_\_  
a) 105-107  
b) 105-108  
c) 1010-1012  
d) 1012-1014  
View Answer

64. The joining efficiency and the energy spent during the welding process are directly proportional.  
a) True  
b) False  
View Answer

65. Resistance welding has the smallest heat affected zone as compared to all welding processes.  
a) True  
b) False  
View Answer

66. In keyhole mode of laser welding, hole is stabilized by the \_\_\_\_\_  
a) weld puddle  
b) shielding gases  
c) pressure of the vapour  
d) laser beam  
View Answer

67. In keyhole mode of laser welding, the keyhole behaves like \_\_\_\_\_  
a) optical black body  
b) an energy reflector  
c) an energy amplifier  
d) a shielding  
View Answer

68. Which of the following has the highest joining efficiency?  
a) Acetylene flame welding  
b) TIG welding  
c) Electron beam welding  
d) Laser welding  
View Answer

69. Flow structures can directly affect the \_\_\_\_  
a) laser wave formation  
b) frozen bead  
c) weld puddle  
d) porosity  
View Answer

70. During laser welding, any hump on the surface can cause \_\_\_\_\_  
a) increase in weld porosity  
b) flow instability  
c) higher energy absorption  
d) decrease in the weld thickness  
View Answer

71. The hot plasma vapour emerging from the keyhole may ionize \_\_\_\_\_  
a) shielding gas  
b) shroud gas  
c) lasing material  
d) workpiece material  
View Answer

72. How many of the following process parameters can affect the welding process?  
• Power pulses  
• Wavelength  
• Gap  
• Joint geometries  
a) 1  
b) 2  
c) 3  
d) 4  
View Answer

73. Which of the following does not affect the operating characteristics in laser welding?  
a) shroud gas composition  
b) material surface conditions  
c) component orientation  
d) shroud design  
View Answer

74. The maximum welding speed varies directly with the power  
a) True  
b) False  
View Answer

75. Pulse repletion factor is considered while determining the welding speed.  
a) True  
b) False