UNIT – 4  NON FERROUS METALS AND ALLOYS

1. Babbitt metal is a ______ base alloy.
   a) lead  b) copper  c) tin  d) cadmium

2. ______ is not nickel-containing aluminum alloy.
   a) Y alloy  b) duralium  c) Hindalium  d) magnalium

3. In corrosion resistant properties, bronzes are ______ to brasses.
   a) Superior  b) inferior  c) same  d) none

4. Copper does not contain following properties ______.
   a) excellent corrosion resistant  b) electrical insulator
   c) non-magnetic properties  d) good machineability

5. Tin base alloys are replaced by aluminum base alloys due to ______.
   a) High cost  b) low strength  c) corrosion  d) less availability

6. ______ types of bearing alloys contain powdered copper and tin.
   a) plain tin bronze  b) Phosphorous bronze  c) leaded bronze  d) sintered bronze

7. Bush bearing is ______.
   a) Aluminum bronze  b) white metal  c) cartridge brass  d) None

8. Yellow brass is mainly used for ______.
   a) rolling  b) stamping  c) extrusion  d) all

9. Copper is used in ______.
   a) electrical conductors  b) automobile radiators  c) pressure vessels  d) all

10. ______ alloys are second only to steel in use as structural metals.
    a) copper  b) lead  c) aluminum  d) magnesium

11. The constituents of phosphor bronze are ______.
    a) Ni, Cu, Co  b) Cu, Zn, Mn  c) Cu, Sn, P  d) Al, Cu, Ni

12. ______ is added to aluminum alloy for improving its hardness.
    a) nickel  b) copper  c) magnesium  d) none

13. Relative density of aluminum is roughly ______ of steel.
    a) one third  b) one fifth  c) one tenth  d) equal

14. In aluminum alloying, copper has better influence in improving ______.
    a) Stress corrosion resistance  b) hardness  c) machinability  d) fatigue strength

15. ______ is used for making cutlery.
    a) German silver  b) Cupronickel  c) Brass  d) Bronze

16. ______ has copper as a major component.
    a) Gun metal  b) Dow metal  c) Nichrome  d) Duralumin

17. Naval brass contains ______.
    a) 40% Cu and 60% Zn  b) 60% Cu, 39.25% Zn, 0.75% Sn
    c) 78% Cu, 19.75% Zn, 2% Sn, 0.25% Pb  d) None
18. German silver contains _______.
   a) 70% Cu and 30% Zn  b) 60% Cu, 60% Zn  
   c) 59% Cu, 40% Zn, 1% tin  d) 60% Cu, 20% Zn, 20% Nickel

19. In muntz metal, if 1% tin is added it forms _______.
   a) admiralty brass  b) naval brass  c) both a & b  d) none

20. Aluminum alloys are used extensively in aircraft due to their _______ strength to weight ratio.
   a) Low  b) high  c) medium  d) none

21. Statues are made of _______.
   a) Y metal  b) bronze  c) Brass  d) gun metal

22. To improve corrosion resistance, a thin film of aluminum is rolled on duralumin sheets known as _______ by trade name.
   a) Alclad  b) Aldur  c) durala  d) cladula

23. Bronze is an alloy of _______.
   a) copper & nickel  b) copper & zinc  c) copper & tin  d) copper & aluminum

24. Beryllium bronze contains _______.
   b) 60% Cu, 40% Be  b) 80% Cu, 20% Be  c) 97.75% Cu, 2.25% Be  d) 99% Cu, 1% Be

25. Duralium can be _______.
   a) forged  b) annealed  c) cold worked  d) all the above

26. _______ is used for manufacturing of sparking chisels in place of steel.
   a) duralium  b) magnelium  c) hindalium  d) y alloy

27. The alloy used for making coins is _______.
   a) Y alloy  b) hindalium  c) bronze  d) brass

28. Aircraft engines are made of _______.
   a) duralumin  b) hindalium  c) magnesium  d) y alloy

29. Alloy using trade name of Hindustan Aluminum Corporation Ltd is _______.
   a) hindalium  b) inconel  c) bronze  d) none

30. Porous self-lubricating bearing have sufficient porosity to hold upto _______ of lubricating oil.
   a) 5%  b) 17%  c) 20%  d) 40%

31. Silicon when added to copper improves _______.
   a) machinability  b) hardness  c) hardness & strength  d) strength & ductility

32. Copper-aluminum alloy can be hardened by adding small percentage of _______.
   a) copper  b) magnesium  c) nickel  d) all

33. _______ alloys are used in automobile piston.
   a) Y alloy  b) copper  c) magnesium  d) duralium

34. Aluminum alloy surfaces will develop a protective layer of aluminum oxide having _____ color.
   b) black  b) white  c) brown  d) blue

35. In porous bearings, oil which is forced from the loaded zone of bearings is reabsorbed by _______.
   a) gravitational force  b) centrifugal force  c) capillary action  d) magnetic action
36. The crystal structure of brass is _______.
   a) FCC  b) BCC  c) HCP  d) Orthorhombic crystal structure

37. The machinability of aluminum increases when _______ is added.
   a) copper  b) magnesium  c) silicon  d) lead & bismuth

38. Porous and self lubricating bearing system does not need any additional external lubricant.
   a) True  b) False

39. The metal suitable for bearings subjected to heavy loads, is _______.
   a) silicon bronze  b) white metal  c) monel metal  d) phosphor bronze

40. Chromium is added to aluminum to improve _______.
   a) casting characteristics  b) machinability  c) toughness  d) none

41. Application of gun metal is _______.
   a) bearings  b) marine castings  c) hydraulic valves  d) statues

42. Bronze contains Tin and copper in the ratio of _______.
   a) 50 : 50  b) 40 : 60  c) 60 : 40  d) 20 : 80

43. Bearing material must possess _______.
   a) low coeff of friction  b) good wearing qualities  c) hi thermal conductivity  d) all

44. Self lubricating bearings is popular in aerospace industry because _______.
   a) lowering labour cost  b) eliminate need of maintenance  c) increase service life  d) all

45. _______ is known as aircraft aluminum.
   a) 6061  b) 6063  c) 7068  d) 7075

46. An elliptical tube of Bourden’s pressure gauge is generally made of _______.
   a) beryllium copper alloy  b) phosphor bronze  c) stainless steel  d) any one

47. Beryllium bronze consists of _______% of beryllium.
   a) 0.1 to 0.5  b) 1.5 to 3  c) 4 to 5  d) 8 to 10

48. _______ is added to aluminum alloys to increase its hardness.
   a) nickel  b) copper  c) magnesium  d) none

49. _______ is the principle alloying element in brass.
   a) zinc  b) tin  c) nickel  d) none

50. Silicon bronze is used to manufacture _______.
   a) strings  b) plates  c) boilers  d) bars

51. The aluminum alloy, mainly used, for anodized utensil manufacture is _______.
   a) duralumin  b) Y alloy  c) magnesium  d) hindalium

52. _______ is used in automobile parts.
   a) duralumin  b) inconel  c) bronze  d) none

53. Phosphor bronze is used to manufacture _______.
   a) Washing machine  b) extractor fan  c) vacuum cleaner  d) bearings

54. Which of the following is α-β brass?
   a) Admiralty brass  b) brazing brass  c) cartridge brass  d) all
55. What is the composition of cartridge brass?  
   a) 50% Cu & 50% Zn  
   b) 60% Cu & 40% Zn  
   c) 70% Cu & 30% Zn  
   d) 20% Cu & 80% Zn

56. Admiralty gun metal contains ________  
   a) 63 to 67% nickel and 30% copper  
   b) 88% copper, 10% tin and rest zinc  
   c) Alloy of tin, lead and cadmium  
   d) Iron scrap and zinc

57. Which of the following cold working operations are suitable for α brass?  
   a) Cold rolling  
   b) Deep drawing  
   c) Both a & b  
   d) None

58. Inconel nickel alloy contains ________  
   a) 75% Ni, 15% Cr, 9% Fe  
   b) 75% Ni, 15% Cr, 9% Al  
   c) 75% Ni, 15% Cr, 9% Mg  
   d) None

59. A bearing material should not possess the characteristic of high ________  
   a) coefficient of friction  
   b) hardness  
   c) melting point  
   d) thermal conductivity.

60. Cartridge brass can be ________  
   a) Cold rolled into sheets  
   b) drawn into wires  
   c) formed into tubes  
   d) any of these