

Engineering Materials

1 of 5 sets

1. The ability of material to absorb a large amount of energy is

- A. Malleability
- B. Resilience
- C. Toughness
- D. Ductility
- E. Hardness

Answer:C

2. Porous materials generally

- A. Transmit sound
- B. Isentropic material
- C. Absorb most of the sound
- D. Reflect entire sound

Answer:C

3. A body which does not contain voids or empty spaces is known as

- A. Continuous body
- B. An isotropic body
- C. Heterogeneous body
- D. Crystalline body
- E. None of the above

Answer:A

4. Standards used in USSR are known as

- A. CSN
- B. AENOR
- C. GOST
- D. UNI
- E. JIS

Answer:C

5. A non-crystalline polymer which can be stretched to more than twice its original length and which contracts quickly on releasing the load, is known as

- A. copolymer
- B. dilatant
- C. plastic
- D. elastomer
- E. None of the above

Answer:D

6. For better fluidity of the molten metal, the following is added in blast furnace

- A. Line
- B. Carbon
- C. Sulphur
- D. Manganese
- E. Oil

Answer:D

7. Lead is used for joining pipes made of

- A. Cast iron
- B. Cold iron steel
- C. Concrete
- D. Asbestos cement
- E. Vitrified clay

Answer:A

8. Laser is a device to produce

- A. Beam of white light
- B. Beam of monochromatic light
- C. Coherent light
- D. X-rays
- E. Microwaves

Answer:C

9. Which of the following has the highest malleability?

- A. Brass
- B. Cast iron

- C. Copper
- D. Aluminium
- E. Lead

Answer:E

10. Notches in a section produce

- A. Compressive stress
- B. Shear stresses
- C. Biaxial tensile stresses
- D. Tri-axial tensile stresses
- E. None of the above

Answer:D

11. In induction hardening

- A. Only d.c. supply is used
- B. The power factor is high
- C. The voltage is high
- D. The frequency is high
- E. The current is high

Answer:D

12. Burger's vector is

- A. estimation of force of substitutional atoms
- B. a defect in crystal structure
- C. a property of dislocations
- D. None of the above
- E. None of the above

Answer:C

13. German silver is an alloy of

- A. Silver, gold and platinum
- B. Silver, copper and nickel
- C. Nickel, copper and zinc
- D. Silver with impurities below 1%
- E. Silver, copper and lead

Answer:C

14. The atomic number of a certain element is 83. An atom of this element must contain

- A. 42 protons and 41 electrons
- B. 83 neutrons
- C. 1 neutron, 41 electrons and 41 protons
- D. 83 electrons
- E. None of the above is valid

Answer:D

15. The electrical resistance of a semi-conductor

- A. Increases with temperature
- B. Decreases with temperature
- C. Does not change with temperature
- E. None of the above

Answer:B

16. Coolant is used on a lathe

- A. To cool the work piece
- B. To cool the tool
- C. To remove the chips
- D. All the above
- E. None of the above

Answer:D

17. Which one is different from the other in press work?

- A. Perforating
- B. Slitting
- C. Blanking
- D. Seaming
- E. Punching

Answer:D

18. Hard steels and non-ferrous metal do not exhibit a definite yield point when pulled in the testing machine and for such cases a better measure of their elastic

properties is defined by

- A. Yield point stress
- B. Yield point strain
- C. Proof stress
- D. Ultimate stress
- E. None of the above

Answer:C

19. If the major quantum number of an atom is three, it possesses

- A. Only s and p electrons
- B. Only s electrons
- C. Only s, p and d electrons
- D. Only p electrons
- E. None of the above is true

Answer:C

20. In an one component system containing two phases, at equilibrium the number of degrees of freedom would be

- A. Infinite
- B. 2
- C. 3
- D. 1
- E. 4

Answer:D

21. The furnace used for castings of cast iron in a foundry shop is known as

- A. Electric induction furnace
- B. Muffle furnace
- C. Blast furnace
- D. Cupola
- E. Reverberatory furnace

Answer:D

22. In fibre glass reinforced plastics, the glass fibres are primarily used to improve

- A. Mechanical properties of plastics
- B. Electrical properties of plastics

- C. Thermal properties of plastics
- D. Surface properties of plastics
- E. None of the above

Answer:A

23. Application of tin is in

- A. bulb filaments
- B. low current fuses
- C. transducers
- D. hair springs
- E. None of the above

Answer:B

24. The phenomenon of 'weld decay' is associated with

- A. Stainless steels
- B. Manganese steels
- C. Aluminium alloys
- D. Cast iron
- E. Brass

Answer:A

25. German silver contains

- A. 5% silver
- B. 1% silver
- C. 10% silver
- D. No silver
- E. 0.1% silver

Answer:A

26. Which of the following is a composite material?

- A. Y-alloy
- B. High speed steel
- C. Tungsten carbide
- D. Fibre reinforced plastic
- E. None of the above

Answer:D

27. A material which undergoes no deformation till its yield point is reached and then it flows at a constant stress is known as

- A. Rigid plastic
- B. Elastic
- C. Rigid
- D. Plastic
- E. Elastic-plastic

Answer:A

28. In carbon steel castings

- A. The percentage of carbon is less than 1.7%
- B. The percentage of carbon is between 1.7% to 2%
- C. The percentage for alloying elements is controlled
- D. (A) and (C) above
- E. (B) and (C) above

Answer:A

29. Nickel is used in

- A. cutting tools
- B. automatic voltage regulators
- C. electrodes of thermionic valves
- D. pressure sensitive elements
- E. None of the above

Answer:C

30. In order to improve machinability of steels, the treatment generally done is

- A. Cyaniding
- B. Tempering
- C. Spheroidising
- D. Annealing
- E. Normalising

Answer:D

31. Induction hardening is the process of

- A. Electrical hardening process
- B. Hardening surface for wear resistance
- C. Hardening the core
- D. Selective hardening
- E. Uniform hardening

Answer:B

32. "Troosite" is obtained when

- A. Quenching steel during transformation
- B. A fully hardened steel is finally drawn at about 677°C
- C. Steel is rapidly quenched in oil
- D. When alloy steels are rapidly quenched in water
- E. None of the above

Answer:A

33. The semi-conductors have electrical conductivities of the following order (ohm-cm⁻¹)

- A. 10²⁰
- B. 10¹⁵
- C. 10³
- E. None of the above

Answer:C

34. Cast iron containing 6.6% carbon is

- A. Black in colour containing only pearlite
- B. Black in colour containing only ferrite
- C. Gray in colour containing pearite and ferrite only
- D. Whitish containing cementite only
- E. None of the above

Answer:D

35. The main alloy for corrosion resistance in stainless steel is

- A. Manganese
- B. Carbon
- C. Vanadium

- D. Cobalt
- E. Chromium

Answer:E

36. A steel having ferrite and pearite is

- A. Soft
- B. Hard
- C. Ductile
- D. (A) and (B) above
- E. (A) and (C) above

Answer:A

37. Which variety of copper has the best mechanical strength?

- A. Annealed copper
- B. Hard drawn copper
- C. Cast copper
- D. Soft copper
- E. None of the above

Answer:B

38. Brinell hardness number for nitrated steel is in the range

- A. 60 to 80
- B. 100 to 150
- C. 300 to 450
- D. 700 to 800
- E. 200 to 300

Answer:D

39. Diamagnetic materials are

- A. Only slightly magnetised
- B. Strongly magnetised
- C. Magnetised with eddy currents only
- D. Magnetised in a direction opposite to that of the applied field
- E. None of the above

Answer:B

40. Gamma iron has

- A. Body centred space lattice structure containing 6 atoms
- B. Body centred space lattice structure containing 10 atoms
- C. Face centred space lattice structure with 8 atoms
- D. Face centred space lattice structure with 14 atoms
- E. None of the above

Answer:D

41. Silicon steel is widely used in

- A. Chemical industry
- B. For cutting tools
- C. Electrical industry
- D. For making leaf springs
- E. For nuts and bolts

Answer:C

42. Moh's scale of hardness has the range

- A. 10--15
- B. 1--5
- C. 1--3
- D. 1--10
- E. 5--10

Answer:D

43. The tendency for brittle fracture increases with

- A. Increasing temperature
- B. Decreasing strain rate
- C. Appreciable plastic deformation before fracture
- D. Appreciable plastic deformation during propagation of the crack
- E. None of the above

Answer:E

44. Preheating of material to be welded is necessary in case of

- A. Non-ferrous materials
- B. Cast iron

- C. Stainless steel
- D. Carbon steel
- E. High speed steel

Answer:B

45. Steel balls for ball bearings are generally made of

- A. Carbon chrome steel
- B. Stainless steel
- C. Cast steel
- D. Nodular cast iron
- E. Free carbon steel

Answer:A

46. The process of reheating the hardened steel to some temperature below the critical range, followed by any rate of cooling is known as

- A. Spheroidising
- B. Normalising
- C. Tempering
- D. Annealing
- E. Austempering

Answer:C

47. Delta iron occurs at temperature in the range of

- A. Room temperature to 600°C
- B. 600°C to critical temperature
- C. Between 800°C and 1200°C
- D. Between 1400°C and 1530°C
- E. None of the above

Answer:D

48. Which process is used primarily to obtain surface finish

- A. Swaging
- B. Electroforming
- C. Shining
- D. Broaching

E. Parkerizing

Answer:E

49. In normalising steel is heated 40-50 C

- A. Above the upper transformation range
- B. Above the lower transformation range
- C. Below the lower transformation range
- D. Above room temperature
- E. Below the upper transformation range

Answer:A

50. Which of the following metals has high tendency to get work hardened?

- A. Lead
- B. Silver
- C. Brass
- D. Aluminium
- E. Copper

Answer:C

51. The property of materials by which they can be drawn into wires is known as

- A. Creep
- B. Malleability
- C. Elasticity
- D. Plasticity
- E. Ductility

Answer:E

52. The strength of timber is

- A. less along the grains more across the grains
- B. more along the grains less across the grains
- C. same in all directions
- D. maximum in a direction at 45° to the longitudinal axis
- E. None of the above

Answer:B

53. Permalloy is

- A. An nickel and iron alloy having high permeability
- B. An alloy similar to carbides
- C. A non-ferrous alloy containing nickel copper and chromium
- D. A kind of stainless steel
- E. A non-ferrous alloy used in aircraft industry

Answer:C

54. Visco-elastic behaviour is common in

- A. Crystalline materials
- B. Non-crystalline solids
- C. Plastics
- D. Rubber
- E. Non-crystalline organic polymers

Answer:A

55. The hardness of steel depends on

- A. Heating temperature before quenching
- B. The shape and distribution of carbides in iron
- C. Amount of carbon it contains
- D. Basic process from which it is produced
- E. Percentage of alloying elements

Answer:B

56. When a current is passed through the junction of two different metals, heat is absorbed or liberated depending on the direction of the current. The above phenomenon is known as

- A. Kelvin effect
- B. Joule's effect
- C. Peltier's effect
- D. None of the above
- E. None of the above

Answer:C

57. Hastalloy consists of

- A. Copper and aluminium

- B. Nickel and molybdenum
- C. Aluminium and nickel
- D. Nickel and copper
- E. Nickel, copper and aluminium

Answer:B

58. Which of the following hardness tester can be used to determine the hardness of a glass sheet?

- A. Brinell hardness tester
- B. Vickers hardness tester
- C. Rockwell hardness tester
- D. Shore scleroscope
- E. None of the above

Answer:D

59. A material is known as allotropic or polymorphic if it

- A. Has its atoms distributed in random pattern
- B. Responds to heat treatment
- C. Has a fixed structure under all conditions
- D. Exists in several crystal forms at different temperatures
- E. Can be cast

Answer:C

60. A piezo electric is

- A. a material which become polarised when stressed
- B. a material which changes dimension due to applied field
- C. a material that never gets polarised
- D. a material in which magnetising force reduces when current flowing is increased
- E. None of the above

Answer:A

61. A material with unequal anti-parallel atomic magnetic moments is

- A. an anti-ferromagnetic
- B. ferrimagnetic
- C. ferrite

- D. non-magnetic
- E. None of the above

Answer:A

62. Boring is generally

- A. Followed by reaming
- B. Preceded by reaming
- C. Followed by drilling
- D. Preceded by drilling
- E. None of the above

Answer:D

63. Ferromagnetic alpha iron change to paramagnetic alpha iron at

- A. 1500°C
- B. 910°C
- C. 77°C
- D. 1400°C
- E. 1650°C

Answer:C

64. If a body has identical properties all over it is known as

- A. Ductile
- B. Isentropic
- C. Plastic
- D. Elastic
- E. Homogeneous

Answer:E

65. The technique of converting metallic powders into articles of definite form is known as

- A. High pressure pressing
- B. Carbiding
- C. Powder metallurgy
- D. Plasticizing
- E. None of the above

Answer:C

66. In Brinell hardness testing, while determining hardness of aluminium

- A. Indenting ball of smaller diameter is used
- B. Time of loading is reduced
- C. Load on the indenter is reduced
- D. Plastic

Answer:C

67. In flame hardening the flame used is

- A. Oil burner
- B. A wick stove
- C. Oxygene air
- D. Gas burner
- E. Oxy-acetylene

Answer:E

68. Viscoelastic materials show behaviour which is

- A. Elastic
- B. Inelastic
- C. Independent of time
- D. Plastic
- E. Time dependent

Answer:E

69. Age hardening is generally applicable to

- A. Alloys of aluminium, magnesium, nickel etc
- B. High alloy steels
- C. Cast iron
- D. Alloys of chromium, vanadium etc
- E. Medium carbon steels

Answer:A

70. Inconel is an alloy containing

- A. Nickel, zinc and iron

- B. Copper nickel and chromium
- C. Nickel, chromium and iron
- D. Nickel, copper and iron
- E. Copper, nickel and cobalt

Answer:A

71. Just as strong is opposite to weak, similarly brittle is opposite to

- A. Tough
- B. Rigid
- C. Elastic
- D. Soft
- E. Hard

Answer:A

72. Gel is

- A. a polymer having side groups distributed randomly along a vinyl polymer chain
- B. a polymer having secondary chains branching from the main molecular chains
- C. A solid frame work of colloidal particles linked together and containing a fluid in its interstices
- D. a polymer in which the repeating unit of each molecule has vinyl group
- E. None of the above

Answer:C

73. Aluminium alloys for pressure die casting

- A. Must possess considerable fluidity
- B. Must not be free from hot shortness
- C. Must have iron as one of the constituents
- D. Must be light
- E. None of the above

Answer:A

74. Carburizing is done

- A. By heating 200°C below critical temperature
- B. On steels with carbon percentage of 0.5%
- C. To induce soft surface for machining on a hard core
- D. To improve hardenability of steel

E. On steel with carbon percentage of 0.7%

Answer:B

75. The amount of cold work that a metal will stand is dependent upon

- A. Room temperature
- B. Carbon percentage
- C. Ductility
- D. Purity of metal
- E. Process

Answer:C

76. Solder is an alloy consisting of

- A. Copper and aluminium
- B. Lead and copper
- C. Tin and lead
- D. Tin, antimony and copper
- E. Tin and copper

Answer:C

77. Which of the following material can be used for the filaments in incandescent lamps?

- A. Carbon
- B. Tungsten
- C. Tantalum
- D. Any of the above
- E. None of the above

Answer:B

78. As per ISS : designation T 70 W 18 4V 1 is

- A. Stainless steel
- B. Low carbon steels
- C. High speed steel
- D. Soft
- E. Silicon steel

Answer:C

79. Which of the following is not the characteristic property of aluminium?

- A. Good electrical conductivity
- B. Lightness
- C. Least affinity for oxygen
- D. Resistance to corrosion
- E. High thermal conductivity

Answer:C

80. In 18-4-1 high speed steel the maximum percentage of any constituent is

- A. Iron
- B. Chromium
- C. Tungsten
- D. Carbon
- E. Vanadium

Answer:A

81. Wrought iron is

- A. Least resistant to corrosion
- B. Heat treated to change its properties
- C. Soft
- D. Highly resistant to corrosion
- E. Hard

Answer:D

82. Machining properties of brass can be improved by the addition of

- A. Carbon
- B. Lead
- C. Zinc
- D. Chromium
- E. Aluminium Copper alloy

Answer:B

83. Silicon steel is widely used in

- A. Automobile industry
- B. Electrical industry

- C. RCC work
- D. Channel and other section for structural fabrication
- E. All of the above

Answer:B

84. The process by which steel is coated by a thin layer of phosphate is known as

- A. Anodising
- B. Phosphorizing
- C. Spheroidizing
- D. Parkerising
- E. Sheradising

Answer:D

85. Creep is expressed in terms of

- A. cm/cm²/hr
- B. cm/cm
- C. kg/cm²
- D. cm/cm/hr
- E. kg/cm

Answer:D

86. According to Hooke's law

- A. Stress is proportional to strain
- B. Stress/strain is constant
- C. Average stress is proportional to average strain
- D. Within elastic limits average stress is proportional to average strain
- E. None of the above

Answer:D

87. Which one is different from the others in press work operations?

- A. Riveting
- B. Sizing
- C. Coining
- D. Flattening
- E. Punching

Answer:E

88. The advantage of electroforming is

- A. Extreme dimensional accuracy can be held on surfaces with surface finish of 8 r.m.s. or even less
- B. Laminated metals can be produced
- C. Rate of production is very high
- D. (A) and (B) above
- E. (A) and (C) above

Answer:D

89. The size of coarse grains in metals is

- A. > 0.0005 mm
- B. >1 mm
- C. > 0.05 mm
- D. > 0.005 mm
- E. > 0.5 mm

Answer:C

90. A ductile fracture is characterized by

- A. Rapid rate for crack propagation
- B. Negligible deformation
- C. Fragmentation into more than two pieces
- D. Appreciable plastic deformation prior to propagation of crack
- E. None of the above

Answer:D

91. Which of the following is not a rare and precious metal?

- A. Platinum
- B. Palladium
- C. Tantalum
- D. Lithium
- E. None of the above

Answer:D

92. Which of the following is donor impurity for semi-conductors?

- A. Boron
- B. Callium
- C. Antimony
- D. Indium
- E. Aluminium

Answer:C

93. A concrete wall generally

- A. Isentropic material
- B. Creates sound
- C. Transmits sound
- D. Reflects sound
- E. Absorbs sound

Answer:D

94. The effect of rolling on steel is

- A. To elongate the inclusions in the direction of rolling giving the steel excellent properties
- B. Reduction in tensile strength
- C. Reduction in fatigue strength
- D. Reduction in hardness
- E. None of the above

Answer:A

95. Fatigue failure occurs when a part is subjected to

- A. Tensile stress
- B. Compressive stress
- C. Torsion
- D. Fluctuating stress
- E. None of the above

Answer:D

96. Heavy water is used in atomic power plants as

- A. Source of energy
- B. Moderator

- C. Lubricant
- D. Fuel
- E. Viscous damping fluid

Answer:B

97. The surface hardness that can be obtained by nitriding is generally in the range

- A. 600 to 800 VPN
- B. Strength and hardness of steel is increased
- C. 400 to 600 VPN
- D. 1000 to 1100 VPN
- E. Below 400 VPN

Answer:D

98. Residual magnetism is

- A. Magnetism left in a sample after a decade
- B. Magnetism left in a sample after one year
- C. Flux density present in a material after magnetising force is removed
- D. The magnetic force required to fully demagnetise a sample
- E. None of the above

Answer:C

99. Every material obeys the Hooke's law within

- A. Breaking limit
- B. Elastic limit
- C. Plastic limit
- D. Limit of proportionality
- E. Yield limit

Answer:B

100. In cast irons

- A. Impact strength is high
- B. With static loading the strength in tension is higher than that in compression
- C. With static loading the strength in tension is lower than that in compression
- D. (A) and (B) above
- E. (A) and (C) above

Answer:C
