060/2024

Maximum : 100 marks

Time : 1 hour and 30 minutes

1. Safety precautions to be observed while working on a machine are :

(1) Measurement can be taken when machines are running.
(2) Stop machine before changing speed.
(3) Tool and workplace can be adjusted when power is on.
(4) Don't attempt to operate machine until you know to operate it properly.

(A) (1) and (2) correct
(B) (2) and (4) correct
(C) (1), (2) and (3) correct
(D) None of the above

2. Full form of PPE in safety is :

(A) Proper Protective Equipment
(B) Protective Primary Equipment
(C) Personal Protective Equipment
(D) Primary Protection Ensurement

3. ABC of first aid are :

(A) Airway Breathing Circulation
(B) Airway Briefing Compression
(C) Airway Breathing Coking
(D) Administration Briefing Circulation

4. Which one of the following is not included in 5S?

(A) Shine
(B) Set
(C) Safety
(D) Sort

5. Which of the following is not among chemical hazard?

(A) Inflammable
(B) Radiation
(C) Explosive
(D) Corrosive

6. Colour and shape of mandatory sign is :

(A) Circular with white symbol on blue background
(B) Square with blue symbol on white background
(C) Triangle with red symbol on white background
(D) Rectangular with white symbol on red background

7. Fire involving metals are classified under :

(A) Class A (B) Class B

(C) Class D (D) Class C

8. Steps for operation of fire extinguisher – P A S S is :

(A) Pull Aim Squeeze Sweep

(B) Push Aim Squeeze Sweep

(C) Pull Aid Stump Sweep

(D) Push Act Stumble Stimulate

9. Which metal is in liquid state at room temperature?

(A) Sodium (B) Magnesium

(C) Mercury (D) Sulfate

10. Brass is an alloy of _____ and _____.

(A) Copper and zinc (B) Copper and Tin

(C) Copper and silver (D) Copper and Aluminium

11. Which one of the following is not physical property?

(A) Weight (B) Fusibility

(C) Structure (D) Elasticity

12. Pig iron is produced in _____ furnace.

(A) Cupola furnace (B) Blast furnace

(C) Electric arc furnace (D) Batch furnaces

13. In grey cast iron, carbon is present in the form of :

(A) Flakes (B) Cementite

(C) Carbonate (D) Hesitate

14. Which metal is abundant on earth?

(A) Iron (B) Copper

(C) Aluminium (D) Silver

15. Which metal is present in calcium Hydroxide?

(A) Oxygen (B) Hydrogen

(C) Carbon (D) Calcium

16. The most reactive metal is :

(A) Gold (B) Silver

(C) Potassium (D) Calcium

17. Which material is used to make dies?

(A) Wrought Iron (B) Tool steels

(C) Mild steel (D) Invar steel

18. In cold chamber die casting machine, depending on metal, the cast pressure on the casting metal may reach up to :

(A) 700 MPa (B) 600 MPa

(C) 500 MPa (D) 400 MPa

19. Hot chamber die casting machine is used to cast :

(A) High strength alloys (B) Ferrous alloys

(C) High melting alloys (D) Low melting alloys

20. _____ are cast through die casting only.

(A) Symmetrical castings (B) Unsymmetrical casting

(C) Thinner section casting (D) Hollow casting

21. Which is not an advantage of die casting?

(A) High rate of production (B) Less floor space required

(C) High cost of die (D) Good surface finish

22. In cold chamber die casting machine the molten metal is fed into die cavity by means of :

(A) Gravity (B) Hydraulic Pressure

(C) Chemical pressure (D) None of these

23. In hot chamber die casting machine :

(A) Melting pot is separate from the machine

(B) Melting pot is an integral part of the machine

(C) Melting pot may have any location

(D) None of these

24. Cold chamber die casting machine is not suitable for :

(A) Aluminium alloys (B) Magnesium alloys

(C) Copper alloys (D) Ferrous alloys

25. In this type of casting hollow structures are made without using cores :

(A) Slush casting
(B) True Centrifugal casting
(C) Both (A) and (B)
(D) None of these

26. Which is not the property of a Permanent Mould casting mould material?

(A) High Thermal Fatigue resistance
(B) High hardness
(C) Low melting point
(D) Low adhesion

27. When the molten metal is fed in the cavity of a metallic mould by gravity, the method of casting is known as :

(A) Centrifugal casting method
(B) Slush casting method
(C) Permanent mould casting method
(D) Die casting method

28. Grey cast iron can also be produced by Permanent mould casting method using a thin refractory coating or lining of sodium silicate or phosphoric acid to withstand :

(A) High melting point
(B) High adhesion
(C) High fusibility
(D) High pouring pressure

29. In carbon di oxide moulding the CO_2 gas is passed through a sand mix containing :

(A) Ammonium chloride
(B) Sodium silicate
(C) Ammonium nitrate
(D) Sodium sulphate

30. Plaster moulding is only suitable for metals and alloys having melting point below :

(A) 1500 °C
(B) 1400 °C
(C) 1300 °C
(D) 1200 °C

31. In shell moulding process mould cavity is created by :

(A) Single shell
(B) Double shell
(C) Three shells
(D) More than three shells

32. The casting method adopted for ornaments and toys of non-ferrous alloys is :

(A) Permanent mould casting
(B) Slush casting
(C) Die casting
(D) Centrifugal casting

33. The reading accuracy of a steel rule is :

(A) 0.1 mm (B) 0.01 mm

(C) 0.5 mm (D) 0.05 mm

34. Try square is specified by according to :

(A) Length of stock (B) Length of blade

(C) Material of try square (D) Weight of try square

35. Fine pitch hack saw blades are _____ mm pitch?

(A) 0.7 mm (B) 0.8 mm

(C) 0.9 mm (D) 1 mm

36. Which caliper is used to marking line parallel to the inside and outside edges?

(A) Outside caliper (B) Inside caliper

(C) Jenny caliper (D) Divider

37. Name the hand tool is used for moistening the sand around the edge before the pattern is removed :

(A) Bellow (B) Swab

(C) Rammer (D) Gaggers

38. Name the equipment used for pouring the molten metal from the furnace :

(A) Sprue cutter (B) Draw spike

(C) Ladles (D) Slick

39. Riddle is used for :

(A) Ramming the moulding sand (B) Cleaning the moulding sand

(C) Moistening the moulding sand (D) Shaping the moulding sand

40. Name the file has individual sharp pointed teeth in a line :

(A) Curved cut file (B) Rasp cut file

(C) Hand file (D) Single cut file

41. The major portion contained in a good moulding sand is :

(A) SiO_2 (B) Al_2O_3

(C) Fe_2O_3 (D) H_2SO_4

42. Name the property of moulding sand to acquire a predetermined shape under pressure and retain this shape when pressure is removed :

(A) Cohesiveness
(B) Dry strength
(C) Plasticity
(D) Adhesiveness

43. Molasses is a _____ type binder.

(A) Natural
(B) Organic
(C) Inorganic
(D) None of the above

44. A mixture of 50% sand grains and 50% clay is called :

(A) Loam sand
(B) Dry sand
(C) Green sand
(D) Backing sand

45. Core sand is also called :

(A) System sand
(B) Parting sand
(C) Oil sand
(D) Green sand

46. Name the test is carried out to determine the percentage of distribution of grain size in the sand :

(A) Fineness test
(B) Moisture content test
(C) Clay content test
(D) Permeability test

47. Name the tool used to pierce holes in the rammed sand which permit the easy escape of steam and gases :

(A) Vent wire
(B) Slick
(C) Lifter
(D) Draw spike

48. The top part of the moulding box is called :

(A) Cheek
(B) Cope
(C) Drag
(D) None of the above

49. What are the main advantages of open sand mould?

(i) No need of box
(ii) No need of sand
(iii) less time and labour
(iv) Make indicate shape casting

(A) (i) and (iii)
(B) only (i)
(C) only (ii)
(D) (iii) and (iv)

50. Three box mould will have two parting lines. Name the middle box?

(A) Drag (B) Cope

(C) Cheek (D) Snap

51. Which method is applicable for making small casting on mass production?

(A) Moulding with false cheek (B) Tree box mould

(C) Plate mould (D) Stack mould

52. In which process mould is not prepared in foundry floor?

(A) Plate mould (B) Sweep

(C) Open sand mould (D) Pit mould

53. In _____ the entire mould is prepared with the help of man power.

(A) Bench mould process (B) Machine mould process

(C) Continuous casting process (D) Hot chamber die casting process

54. Which one is the main advantage of machine moulding?

(A) High cost of equipment (B) High production rate

(C) Make intricate shape casting (D) Only suitable for mass production

55. To provide uniform hardness all over mould, the ramming operation is done in both :

(A) Jolt and Siling machine (B) Squeeze and Siling machine

(C) Siling and Squeeze machine (D) Jolt and Squeeze machine

56. Which heat treatment of steel increases hardness?

(A) Annealing (B) Hardening

(C) Normalising (D) Case hardening

57. Which process produces only outer surfaces of job hardened, to some depth?

(A) Annealing (B) Hardening

(C) Normalising (D) Case hardening

58. _____ is the operation of heating steel to specific temperature and cooling suddenly.

(A) Tempering (B) Hardening

(C) Annealing (D) Quenching

59. The main purpose of 'Normalising' steel is :

(A) To control hardness

(B) To prevent cracking

(C) To make welding operation easier

(D) To produce fine grain of uniform structure

60. If material is softened and suitable for machining, which heat treatment process is used?

(A) Annealing (B) Tempering

(C) Normalising (D) Case hardening

61. Where the steel is reheated to a suitable temperature below the critical point (heating) to improve the toughness and ductility?

(A) Annealing (B) Hardening

(C) Tempering (D) Normalising

62. Normalising process is very similar to _____ but the jobs are allowed to cool in air.

(A) Hardening (B) Annealing

(C) Tempering (D) Case hardening

63. Sprue in gating system refers to :

(A) Horizontal passage (B) Riser

(C) Runner (D) Vertical Passage

64. In a sound casting the last liquid to solidify is in the :

(A) Core (B) Riser

(C) Gate (D) Runner

65. Riser must freeze slowly than the casting, so the volume to surface area ratio should be maximum. This is maximum for :

(A) Cylinder (B) Rectangle

(C) Sphere (D) Square

66. Which among the following is not an advantage of parting line gating?

(A) Produce very satisfactory results when drag is not very deep

(B) Simple to construct

(C) Very fast to make

(D) Will cause erosion or washing out of mould

67. The component that directs the molten metal into the cavity of the mould :

(A) Ingates (B) Riser

(C) Runner (D) Sprue

68. Wax patterns are used in :

(A) Carbon dioxide moulding (B) Full moulding process

(C) Investment casting process (D) Shell moulding process

69. The disadvantage in using wood as the material for pattern making is :

(A) Easy to obtain good surface finish

(B) It get warped when not stored properly

(C) It is light in weight

(D) It is low cost

70. Match plate pattern is mainly used for :

(A) Hollow castings (B) Large castings

(C) Machine moulding (D) Valve bodies

71. The draft allowance to be provided on a pattern not depends on :

(A) Cost of the casting (B) Intricacy of the pattern

(C) Length of the vertical side (D) The method of moulding

72. The surface to be machine is marked on the pattern by

(A) Black colour (B) Yellow colour

(C) Blue colour (D) Red colour

73. A foundry in which all the castings made are consumed for the product being manufactured by the organisation :

(A) Captive foundry (B) Ferrous foundry

(C) Jobbing foundry (D) Production foundry

74. In what type of foundry process molten metal is poured into moulds while they are rotating?

(A) Centrifugal casting (B) Die casting

(C) Investment casting (D) Sand casting

75. The tool used to blow loose particles of sand from the pattern and mould cavity :

(A) Vent rod (B) Swab

(C) Slick (D) Bellow

76. Metal which expands on solidification :

(A) Aluminium (B) Copper

(C) Grey cast iron (D) Steel

77. Which among the following is a ferrous metal?

(A) Aluminium (B) Steel

(C) Zinc (D) None of the above

78. What is the purpose of adding a binder to Green Sand Mold?

(A) To increase the strength of the mold

(B) To decrease the molding time

(C) To improve the surface finish of the castings

(D) To lower the melting point of the sand

79. What is the primary function of a chaplet in loam sand casting?

(A) To facilitate mold closing

(B) To support overhanging features in the mold

(C) To provide additional venting

(D) To regulate pouring temperature

80. Cement-bonded sand molds are commonly used for casting which types of metals?

(A) Noble (B) Precious

(C) Non-ferrous (D) Ferrous

81. The primary disadvantage of loam sand molds is their :

(A) Low permeability (B) Limited reusability

(C) Long curing time (D) Susceptibility to moisture absorption

82. Which of the following materials is commonly used as fuel in cupola furnaces?

(A) Natural gas (B) Electricity

(C) Coke (D) Diesel

83. What is the primary function of a blast furnace?

(A) Forging (B) Smelting

(C) Annealing (D) Heat treatment

84. The lining of the hearth (bottom) of an open hearth furnace depends on the process being used. An acidic process uses a lining of :

(A) Silica (B) Magnesia
(C) Alumina (D) Carbon

85. Bessemer furnaces are primarily used for the production of :

(A) Aluminium (B) Iron
(C) Copper (D) Steel

86. What is the purpose of a flask in the context of moulding boxes?

(A) To shape the pattern (B) To hold the sand mould in place
(C) To provide a pouring basin (D) To mix the moulding sand

87. Moulding box tapered snap flasks are typically made from which material?

(A) Steel (B) Aluminium
(C) Wood (D) Plastic

88. In a two-part moulding box frame flask, the cope is typically:

(A) The top half (B) The bottom half
(C) The center section (D) The pouring basin

89. What is a snap flask primarily used for in foundry operations?

(A) Sand mixing (B) Sand reclamation
(C) Sand cooling (D) Sand moulding

90. Which of the following are core ramming machine given below?

(i) Jolting
(ii) Squeezing
(iii) Singing
(iv) Small bench blowers

(A) (i) and (iv) (B) (ii) and (iv)
(C) (i), (ii) and (iii) (D) (iii) and (iv)

91. Core box is used in which of the following purpose :

(A) In making core (B) In casting
(C) In ramming (D) In making a pattern

92. Which is used for getting entire mould cavity in casting?

(A) Core (B) Muller
(C) Binder (D) None of these

93. Which method is used for removing adhering sand from the casting?

(A) Thumbling (B) Brushing

(C) Flogging (D) Shearing

94. Which is the finishing operation of casting?

(A) Flogging (B) Shearing

(C) Buffing (D) None of these

95. Which process is used to remove unwanted projections from the casting?

(A) Chipping (B) Grinding

(C) Flame cutting (D) All of these

96. Which defect occur due to incorrect gating and feeding in casting?

(A) Shrinkage (B) Distortion

(C) Rough surface (D) None of these

97. Which of the following are common casting defects?

(i) Cracks
(ii) Spatter
(iii) Undercut
(iv) Hot spot

(A) (i) and (ii) (B) (ii) and (iii)

(C) (i) and (iv) (D) (iii) and (iv)

98. Which of the following defect occur due to insufficient fluidity of the molten metal?

(A) Misrun (B) Blow holes

(C) Scabs (D) Slag

99. Which test are carried out to detect the internal defects?

(i) Impact test
(ii) Ultrasonic test
(iii) Radiographic test
(iv) Pressure test

(A) (i) and (iii) (B) (ii) and (iii)

(C) (iii) and (iv) (D) (i) and (iv)

100. Test in which specimen is tested without breaking is called _____

(A) Destructive test (B) Non destructive test

(C) Tensile test (D) None of these

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