116/2025

Question Booklet Alpha Code: **A**

Question Booklet Serial Number:

Total No. of questions : 100 Time : 1 Hour 30 Minutes

Maximum : 100 Marks

INSTRUCTIONS TO CANDIDATES

1. The question paper will be given in the form of a Question Booklet. There will be four versions of question booklets with question booklet alpha code viz. A, B, C & D.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the question booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a question booklet where the alpha code does not match to the allotted alpha code in the seating position, please draw the attention of the Invigilator IMMEDIATELY.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your question booklet is un-numbered, please get it replaced by new question booklet with same alpha code.
6. The question booklet will be sealed at the middle of the right margin. Candidate should not open the question booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the question booklet supplied to him contains all the 100 questions in serial order. The question booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same alpha code. This is most important.
8. A blank sheet of paper is attached to the question booklet. This may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball-Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

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Maximum : 100 marks

Time : 1 hour and 30 minutes

1. What term is used to keep needed items in correct place to allow for easy and immediate retrieval in 5S concept?

(A) Standardize (B) Set

(C) Shine (D) Sort

2. What is the accuracy of caliper using with steel rule?

(A) 1 mm (B) 0.2 mm

(C) 0.5 mm (D) 0.1 mm

3. What is the colour code of bins for food wastage?

(A) Red (B) Sky blue

(C) Yellow (D) Black

4. The SI unit of temperature is :

(A) Celsius (B) Kelvin

(C) Farenheit (D) Ampere

5. What stands for 'ABC' in the first aid?

(A) Aid, Break, Control

(B) Avoid, Bleeding, Comfort

(C) Airway, Breathing, Circulation

(D) Accident, Bleeding, Circulation

6. What are the measuring angles of a square head in combination set?

(A) 45^{o} and 90^{o}

(B) 60^{o} and 90^{o}

(C) 30^{o} and 90^{o}

(D) 90^{o} and 120^{o}

7. What is the name of the fire involving metals?

(A) Class A fire
(B) Class B fire
(C) Class C fire
(D) Class D fire

8. What is the least count of the vernier bevel protractor?

(A) 25 minutes
(B) 5 minutes
(C) 50 minutes
(D) 1 minute

9. What is the period of golden hours in treating serious condition person?

(A) First 6 hours
(B) First 2 hours
(C) First 30 minutes
(D) First 1 hour

10. The outside micrometer works with the working principle of

(A) Sliding mechanism
(B) Rack and pinion
(C) Screw and nut
(D) Scroll and lever

11. What are the three factors causes fire?

(A) Fuel, Heat, Oxygen
(B) Fuel, Nitrogen, Oxygen
(C) Heat, Nitrogen, Oxygen
(D) Fuel, Heat, Carbon dioxide

12. Which one of the following forms the hypotenuse of the right angle triangle while checking with sine bar?

(A) Slip gauge Height
(B) Sine bar length
(C) Sine bar width
(D) Surface plate length

13. Which of the following is the best method to avoid accident?

(A) Doing things with highly skilled working practice
(B) By wearing safety equipments
(C) Doing things in one's way
(D) By observing safety precautions related to job, machine and working place

14. What is the pitch of the spindle thread in metric outside micrometer?

(A) 0.02 mm (B) 0.5 mm

(C) 0.01 mm (D) 0.1 mm

15. Which of the following comes under the mechanical hazards?

(A) Ill health

(B) Unguarded machinery

(C) Wrong attitude

(D) Inflammable

16. What is the act of joining the slip gauges together for building up sizes?

(A) Wringing (B) Glazing

(C) Pinning (D) Loading

17. What is the first aid treatment for the third degree burns?

(A) Bind bandage

(B) Apply cream

(C) Cover with a damp cloth

(D) Flush with cool water

18. What is the shape of dial in a vernier bevel protractor?

(A) Rectangular (B) Round

(C) Circular (D) Square

19. One micrometer is equal to _____ mm.

(A) 1 mm (B) 1000 mm

(C) 0.001 mm (D) 0.01 mm

20. Which of the following comes under machine safety?

(A) Wear safety shoes

(B) Switch off the machine immediately if something goes wrong

(C) Don't walk under suspended loads

(D) Never touch the electrical equipment with wet hand

21. What is the accuracy of Engineer's steel rule?

(A) 1 mm (B) 5 mm

(C) 0.1 mm (D) 0.5 mm

22. Which type of screw is used to fix the hard jaw plate of the bench vice?

(A) Thumb screw (B) Cheese head screw

(C) Counter sink screw (D) Self piercing screw

23. Puddling furnace is used to produce _____metal.

(A) Wrought iron (B) Cast iron

(C) Pig iron (D) Steel

24. Which one of the following elements of a thread cannot be checked with screw pitch gauge?

(A) Pitch (B) Lead

(C) Profile (D) Depth

25. The reamer teeth are unevenly spaced because :

(A) They are easy to manufacture (B) They can reduce chattering

(C) Accuracy to close limit (D) Easy to reaming

26. Which type of flame is used to weld brass metal?

(A) Air acetylene flame (B) Neutral flame

(C) Oxidizing flame (D) Carburizing flame

27. Main purpose of Annealing is :

(A) To improve machinability (B) To improve hardness

(C) To improve brittleness (D) All of the above

28. While grinding a chisel a slight convexity provided to the cutting edge is :

(A) Cut the curved surface

(B) Prevent digging of the chisel in work piece

(C) Cut sharp corners

(D) All of the above

29. Material difficult to be spot weld is :

(A) Mild steel (B) Aluminium

(C) Stainless steel (D) Cast steel

30. In a letter drill size, the size of the drill 'A' is equal to :

(A) 5.944 mm (B) 10.49 mm

(C) 0.35 mm (D) 5.791 mm

31. Heating of a plain carbon steel uniformly above the lower critical temperature, causes the commencement of formation of solid solution is called :

(A) Ferrite (B) Pearlite

(C) Austenite (D) Martensite

32. Melting point of copper is :

(A) 650°C (B) 980°C

(C) 723°C (D) 1083°C

33. Which plug gauge has GO and NO GO end in same side?

(A) Taper plug gauge (B) Ring gauge

(C) Progressive plug gauge (D) Thread plug gauge

34. The tap used to cut full thread in blind hole is :

(A) Taper tap (B) Second tap

(C) Bottoming tap (D) Grooving tap

35. Which one of the mechanical properties enables metal to be made into thin sheet is :

(A) Ductility (B) Malleability

(C) Elasticity (D) Toughness

36. Which metal is ideally suited for anodizing?

(A) Copper (B) Nickel

(C) Aluminium (D) Iron

37. Lip clearance angle of twist drill is :

(A) 12 – 15° (B) 8 – 12°

(C) 18 – 32° (D) 118°

38. Which gas is used for TIG welding of aluminium?

(A) Carbon dioxide (B) Nitrogen

(C) Oxygen (D) Argon

39. Alloying elements in gun metal is :

(A) Copper + Zinc + Tin (B) Copper + Tin +Aluminium

(C) Copper + Zinc (D) Copper + Zinc + Lead

40. When the size of taper shank drill is larger than the machine spindle, the device to hold the drill is a

(A) Drill sleeve (B) Drill socket

(C) Drill drift (D) Drill chuck

41. In terms of measurement what is the relationship between crank throw and stroke of an engine?

(A) Throw and stroke are same
(B) Throw is half of the stroke
(C) Stroke is half of the throw
(D) Throw is double of the stroke

42. The burning property of Gasoline fuel is determined by its :

(A) Octane number
(B) Volatility
(C) Cetane number
(D) Pour point

43. What is the material used in dry type air filter?

(A) Wire mesh
(B) Fiber
(C) Cloth
(D) Paper

44. What is the effect of excessive back pressure?

(A) Increase volumetric efficiency
(B) Reduce volumetric efficiency
(C) Increase vehicle speed
(D) Increase power

45. Included angle of isometric thread :

(A) 55°
(B) 29°
(C) 60°
(D) 45°

46. An engine cylinder block with all other parts removed is called a :

(A) Short block
(B) Long block
(C) Bare block
(D) Block deck

47. Which is the ratio of power delivered and power available in the engine?

(A) Volumetric efficiency
(B) Thermal efficiency
(C) Mechanical efficiency
(D) Horse power

48. V- belts transmit more power without slip as compared in flat belt because :

(A) V-belt does not reach the bottom of the groove
(B) V-belt reach at the middle of the groove
(C) V-belt reach the bottom of the groove
(D) None of the above

49. Rope drives are used to transfer power between two parts which are at :

(A) Long distance
(B) Moderately long distance
(C) Short distance
(D) Moderately short distance

50. The cam shaft drive which does not require lubrication is :

(A) Chain drive
(B) Toothed rubber belt
(C) Gear drive
(D) None of these

51. Type of bevel gear used in non parallel non intersecting shaft :

(A) Spiral bevel gear
(B) Straight bevel gear
(C) Hypoid bevel gear
(D) None of these

52. Type of clutch used in two wheelers :

(A) Single plate clutch
(B) Electromagnetic clutch
(C) Multi plate clutch
(D) Cone clutch

53. The bearing that carry heavy radial and axial loads:

(A) Spherical roller bearing
(B) Needle bearing
(C) Taper roller bearing
(D) Cylindrical roller bearing

54. In a two-stroke engine how many rotations of the crank shaft required to open the intake port in two times?

(A) One rotation
(B) Two rotation
(C) Three rotation
(D) Four rotation

55. A sliding bearing which operates without any lubricant present is called :

(A) Zero Film bearing
(B) Boundary lubricated bearing
(C) Hydrostatic lubricated bearing
(D) Hydrodynamic lubricated bearing

56. The type of key used in muff coupling :

(A) Taper key
(B) Square key
(C) Gib-head key
(D) Round key

57. Which is the amount of valve train movement produced by the cam lobe?

(A) Camshaft lift
(B) Camshaft dwell
(C) cam ramp
(D) camshaft duration

58. Die stock is used to :

(A) Make internal thread
(B) Make external thread
(C) Hold the work piece
(D) Hold the die

59. Which one of the following is used to start internal threading?

(A) Taper tap
(B) Plug tap
(C) Second tap
(D) Die

60. The most important characteristic of lubricating oil is its :

(A) Viscosity
(B) Chemical stability
(C) Physical stability
(D) Resistance against corrosion

61. Most commonly used lubricants in automobiles :

(A) Animal oil (B) Vegetable oil

(C) Mineral oil (D) Synthetic oil

62. If IHP and BHP of an engine is given then its FHP is :

(A) FHP = IHP+BHP (B) FHP = 1/2 of BHP

(C) FHP = 1/2 of IHP (D) FHP = IHP – BHP

63. Ball bearing on the shaft is an example for :

(A) Driving fit (B) Interference fit

(C) Shrinkage fit (D) Transition fit

64. The dimension of a hole is $40^{+0.028}_{+0.040}$ mm, which size of the following is within tolerance?

(A) 40.000 mm (B) 40.010 mm

(C) 40.038 mm (D) 40.050 mm

65. Under the terminology of the TS system of limits the term 'tolerance' is defined as the difference between the :

(A) Maximum limit and the basic size (B) Minimum limit and the basic size

(C) Maximum limit and minimum limit (D) Actual size and basic size

66. In the BIS system of limits and fits the standard range of sizes covered are :

(A) 0 to 500 mm (B) 25 to 400 mm

(C) 0 to 100 mm (D) 0 to 10 mm

67. Grade of the hole is H6.Which of the manufacturing process is used?

(A) Broaching (B) Hand reaming

(C) Grinding (D) Boring

68. Which of the following have threads at both ends?

(A) Bolt (B) Tap bolt

(C) Stud (D) None of the above

69. Type of thread used in lead screw of lathe:

(A) Metric thread (B) Square thread

(C) Buttress thread (D) ACME Thread

70. What is used in carburetion system to suppress the engine induction system?

(A) Muffler (B) Air cleaner

(C) Venturi (D) Air dam

71. Electrons while flowing pass through the molecules or the atoms of the conductor collid with other atoms and electrons, there by producing :

(A) current (B) voltage

(C) heat (D) resistance

72. The atomic weight of material is weight of :

(A) protons plus electron (B) electron only

(C) protons only (D) protons and neutrons

73. The maximum number of electrons possible third extranuclear orbit or M shell is :

(A) 8 (B) 18

(C) 32 (D) 2

74. The material whose resistance at ordinary temperature lie in between of typical metals and typical insulators are called :

(A) conductor (B) insulator

(C) semiconductor (D) none of above

75. Resistance of a conductor directly related to :

(A) cross section of conductor (B) length of conductor

(C) nature of material (D) temperature of material

76. Which of the following is not a source of electricity?

(A) battery (B) thermocouple

(C) generator (D) rectifier

77. Unit or electrical inductance

(A) Farad (B) Weber

(C) Henry (D) Ohm

78. The term used for comparing insulation properties of insulating materials :

(A) resistance (B) die-electric strength

(C) specific resistance (D) mechanical strength

79. From the following materials which has nearly zero temperature coefficient :

(A) Manganin (B) Iron

(C) Carbon (D) Aluminium

80. Mica, Ceramics, Glass, Teflon are including which class of insulating materials?

(A) Class Y (B) Class C

(C) Class E (D) Class A

81. The division of current in the branches of a parallel circuit is directly proportional to :

(A) Conductance (B) Resistance

(C) Voltage (D) Current

82. Electric pressure measured by :

(A) wattmeter (B) amp-meter

(C) volt meter (D) p.f. meter

83. The resistance of 30 Ω, 15 Ω, and 5 Ω are connected in parallel, their combined resistance will be :

(A) greater than 30 Ω (B) between 30 Ω to 15 Ω

(C) between 15 Ω to 5 Ω (D) less than 5 Ω

84. Wheatstone bridge is used to measure the DC resistance of various types of wires for :

(A) determine their effective resistance

(B) computing the power dissipation

(C) quality control of wire

(D) maintaining the source of constant e.m.f

85. In any electric network, the algebraic sum of currents meeting at a point is zero, it derived by following any law :

(A) Ohm's law (B) Mesh Law

(C) Point law (D) Voltage law

86. If the diameter of a metal wire of a given length is doubled, its resistance will :

(A) be doubled (B) be halved

(C) be remain the same (D) be $\frac{1}{4}^{th}$ time

87. Arc heating occurs when the air between electrodes of opposite polarity becomes :

(A) moistened (B) ionised

(C) dry (D) none of the above

88. Which following circuit will be voltage source produce the maximum current?

(A) 10 V across a 10 Ω resistance

(B) 10 V across two 10 Ω resistance in series

(C) 10V across two 10 Ω resistance in parallel

(D) 1000 V across a 1 mega Ω resistance

89. The resistance of a given wire is 2 Ω. The resistance of the other wire made of same materials having twice length and twice the cross-sectional area is :

(A) 2 Ω (B) 5 Ω

(C) 8 Ω (D) 60 Ω

90. Which of the following material has a negative temperature co efficient of resistance?

(A) Brass (B) Copper

(C) Carbon (D) Aluminium

91. A heater element has to be made of nichrome wire having a resistance of 1.1 Ω /meter. If heater is to have a rating of 1100 W on 220 V supply, how much length of element is required :

(A) 10 m (B) 20 m

(C) 30 m (D) 40 m

92. The material used for fuse element must have :

(A) Low melting point and low specific resistance

(B) High melting point and high specific resistance

(C) Low melting point and high specific resistance

(D) High melting point and low specific resistance

93. Alternator of a central power station will have :

(A) revolving armature winding

(B) revolving field winding

(C) both of above

(D) none of the above

94. A surge tank is attached to the penstocke pipe hydro power plant. What its important?

(A) reduce water head in reservoir

(B) increase reservoir capacity

(C) avoid water hammering effect

(D) avoid power plant over loading

95. Average wind velocity considered to suitable for establishing commercial wind farms :

(A) 50 kmph (B) 18 kmph

(C) 12 kmph (D) 60 kmph

96. In a cable, electric stress is maximum at :

(A) the surface of conductor

(B) the outer surface of armouring

(C) the outer surface of cable

(D) none of above

97. Material used for making solar cell :

(A) carbon (B) sodium

(C) silicon (D) magnesium

98. The modern steam turbine are :

(A) impulse turbine (B) reaction turbine

(C) impulse reaction turbine (D) none of the above

99. A typical output of solar cell :

(A) 0.1 volt (B) 0.26 volt

(C) 1.1 volt (D) 0.4 volt

100. Full form of FF in the solar field :

(A) Form Factor (B) Fill Factor

(C) Face Factor (D) Fire Factor

SPACE FOR ROUGH WORK

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