055/2022

Question Booklet Alpha Code	**A**	Question Booklet Serial Number

Total Number of questions : 100 **Time : 90 Minutes**

Maximum Marks : 100

INSTRUCTIONS TO CANDIDATES

A

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 unnumbered, 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.

DO NOT WRITE HERE

1. Which one of the following is not a purpose of practising safety precautions in industries?

   (A) Avoid accidents to self
   (B) Avoid accidents to fellow workers
   (C) Protect the equipment
   (D) Improves quality of products

2. Name the hazard against which the personal protective equipment, 'Helmet' is used.

   (A) Falling objects
   (B) Dust particles
   (C) Fumes
   (D) High noise level

3. _____ is a method of extinguishing fire by isolating it from the supply of oxygen by blanketing it with foam or sand.

   (A) Cooling
   (B) Starving
   (C) Smothering
   (D) Condensing

4. Identify the unmatched pairs from the following regarding 5's' concepts for workplace organisation.

   (i) Seiri - set
   (ii) Seiton - sort
   (iii) Seiso - Shine
   (iv) Seiketsu - standardize
   (v) Shitsuke - sustain

   (A) only i & iv
   (B) only i & ii
   (C) only iii & v
   (D) only iv

5. In the ABC of first aid, 'B' stands for _____.

   (A) Baking
   (B) Breaking
   (C) Binding
   (D) Breathing

6. Name the natural process of waste disposal, which involves breaking down the waste material into organic compounds.

   (A) Recycling
   (B) incineration
   (C) Composting
   (D) Burning

7. One millimeter is equal to _____ micrometer.

   (A) 0.001
   (B) 1000
   (C) 100
   (D) 0.01

8. Which of the following statements is/are true about outside caliper?

(i) Direct measuring instruments

(ii) Transfer measurement from steel rule to job

(iii) Classified according to the joints

(A) All of the above (i, ii & iii) (B) only ii & iii

(C) only i & ii (D) only i & iii

9. What is the least count of a vernier caliper with one main scale division of 1 mm and 49 such divisions on the main scale are equally divided into 50 divisions on the vernier scale?

(A) 0.01 mm (B) 0.001 mm

(C) 0.02 mm (D) 0.2 mm

10. Which of the following precision instrument cannot give direct reading of the size?

(A) Vernier caliper (B) Outside micrometer

(C) Dial caliper (D) Dial test indicator

11. Identify the wrong statement/statements from the following about vernier bevel protractor:

(i) It is used for measuring angles

(ii) The accuracy is 5 minutes

(iii) Each division on the main scale represents 2 degree

(A) Only i & ii (B) Only iii

(C) Only ii & iii (D) All of the above (i, ii & iii)

12. _____ is termed the act of joining slip gauges together, while building up to size.

(A) Wringing (B) Fastening

(C) Binding (D) Joining

13. A sine bar is specified by _____ of the following.

(A) Weight (B) Roller diameter

(C) Centre distance between Rollers (D) Width

14. Grade 'A' V-Blocks are made of _____ material.

(A) Cast iron (B) Wrought iron

(C) Mild steel (D) High quality steel

15. Select the correct statement/statements from the following about an engineer's hammer:

(i) It is made of drop forged carbon steel

(ii) Slight convexity is given on the face

(iii) Pein is used for shaping and forming work

(iv) The face, pein and cheek are hardened

(A) Only i & ii
(B) Only iii & iv
(C) Only i, ii & iv
(D) Only i, ii & iii

16. Which of the following is a criteria for the selection of marking media for a particular job?

(A) Surface finish
(B) Surface hardness
(C) Material of job
(D) Type of operation

17. Which of the following statements is/are not true about standard wire gauge?

(i) It is a circular metal disc

(ii) It has varying holes and slots on its circumference

(iii) Each slot size corresponds to a gauge number

(iv) As gauge number increases, diameter also increases

(A) Only i
(B) Only iv
(C) Only ii & iii
(D) Only iii & iv

18. Which angle provided on the twist drill helps to prevent friction of the tool behind the cutting edge?

(A) Point angle
(B) Helix angle
(C) Web angle
(D) Clearance angle

19. _____ Angle plates are adjustable, so that the two surfaces are kept at an angle.

(A) Plain solid type
(B) Slotted type
(C) Swivel type
(D) Box type

20. Which type of cast iron is also known as chilled cast iron?

(A) White cast iron
(B) Grey cast iron
(C) Nodular cast iron
(D) Malleable cast iron

21. Which of the following statements is/are wrong about the non-ferrous metal, copper?

(i) It is a malleable and ductile metal

(ii) It is a good conductor of electricity

(iii) Galena is the ore of copper

(iv) It is a good insulator against nuclear radiation

(A) Only i & ii
(B) Only iv
(C) Only iii & iv
(D) Only ii & iii

22. Which heat treatment process is employed to increase the wear resistance of steel?

(A) Annealing
(B) Tempering
(C) Normalising
(D) Hardening

23. _____ is used as a reducing agent in blast furnace in the production of pig iron.

(A) Limestone
(B) Coke
(C) Magnetite
(D) Hematite

24. Which of the following welding methods requires a non-consumable electrode?

(A) Shielded metal arc welding
(B) Gas metal arc welding
(C) Gas tungsten arc welding
(D) Carbon dioxide welding

25. Identify the correct statement/statements about soldering fluxes.

(i) They are classified as organic and inorganic

(ii) Fluxes prevent corrosion

(iii) It helps molten solder to flow easily

(iv) It promotes oxidation

(A) Only i & ii
(B) Only ii & iii
(C) Only i, iii, & iv
(D) Only i, ii & iii

26. What is the effect of current works on electroplating?

(A) X-ray effect
(B) Magnetic effect
(C) Skin effect
(D) Chemical effect

27. What is the full form of BIS?

(A) Bureau of Indian Standards
(B) Board of Indian Standard
(C) Board of International Standard
(D) Bureau of International Standard

28. Which is the example of coarse excess current protection?
(A) MCB
(B) rewireable type fuse unit
(C) HRC fuse
(D) MCCB

29. Which is not a property of an insulator?
(A) High dielectric strength
(B) High mechanical strength
(C) High Permittivity
(D) High heat conductivity

30. What is the unit of insulation resistance?
(A) Ampere
(B) Watts
(C) Ohm
(D) Megaohm

31. How many numbers of electrons are there in copper atom?
(A) 59
(B) 49
(C) 29
(D) 39

32. Which is the good conductor in terms of conductivity?
(A) Silver
(B) Brass
(C) Aluminium
(D) Copper

33. What is the temperature value of class 'F' insulation?
(A) 120°C
(B) 155°C
(C) 100°C
(D) 85°C

34. Which method is used for measuring 1 ohm to 100 kΩ range resistance?
(A) Wheatstone bridge method
(B) Substitution method
(C) Voltmeter and Ammeter method
(D) Kelvin bridge method

35. What is the value of resistance in an open circuit?
(A) Zero
(B) Infinity
(C) High
(D) Low

36. How many ohm is equal to one megaohm?
(A) 2000 kΩ
(B) 100 kΩ
(C) 1000 kΩ
(D) 10 kΩ

37. Which one is negative temperature co-efficient material?
(A) Copper
(B) Mica
(C) Aluminium
(D) Carbon

38. In a parallel circuit, the potential difference across a resistor
(A) Varies
(B) Sometime constant
(C) Is always constant
(D) Is different from applied voltage

39. Ohm's law does not apply to
(A) Semi conductors
(B) Conductors
(C) DC circuits
(D) AC circuits

40. Calculate the hot resistance of 200w/250v rated lamp.
(A) 31.25
(B) 3125
(C) 625
(D) 312.5

41. Large value resistances are expressed in kilo ohm and megaohm. How can 2800 ohm resistor be expressed?
(A) 2.8 kΩ
(B) 2800 Ω
(C) 0.2800 kΩ
(D) 28 Ω

42. The equivalent resistance of the parallel circuit is _____ than the smallest single resistance.
(A) greater
(B) half
(C) equal
(D) smaller

43. What is the effect on output power with respect to temperature in solar cell?
(A) No effect on change in temperature
(B) Decreases with decrease in temperature
(C) Decreases with increase in temperature
(D) Remains same

44. Which power plant is free from environmental pollution problem?
(A) Nuclear power plant
(B) Geothermal energy power plant
(C) Thermal power plant
(D) Hydro electric power plant

45. In thermal power plant boiler requires _____
(A) Dirty water
(B) Hard water
(C) Clean and soft water
(D) Salt water

46. Photovoltaic solar energy conversion system makes use of _____
(A) Solar cell
(B) Solar pond
(C) Fuel cell
(D) Solar collector

47. Which of the following is an example of primary resources?

(A) Petrol
(B) Hot water
(C) Steam
(D) Sunlight

48. Which of the following is used to control the movement of the needle in pelton wheel turbine?

(A) Nozzle
(B) Governor
(C) Moving Blades
(D) Valve spring

49. Which component in a steam power plant is used to heat the feed water from flue gas?

(A) Air preheater
(B) Boiler
(C) Economizer
(D) Super heater

50. What is the name of the material used for making solar cell?

(A) Silicon
(B) Germanium
(C) Arsenic
(D) Antimony

51. In a four-stroke Spark Ignition engine the cam shaft runs _____

(A) at the same speed as crank shaft
(B) at half the speed of crank shaft
(C) at twice the speed of crank shaft
(D) at any speed irrespective of crank shaft speed.

52. The ratio of brake power to indicated power of an I.C. engine is called _____

(A) mechanical efficiency
(B) thermal efficiency
(C) volumetric efficiency
(D) relative efficiency

53. Which scavenging system has highest scavenging efficiency?

(A) Uniflow scavenging
(B) Loop scavenging
(C) Reverse scavenging
(D) Cross scavenging

54. A spark energy required to initiate combustion A/F ratio 12-13:1.

(A) 10 millijoules
(B) Below 10 millijoules
(C) Above 10 millijoules
(D) None of the above

55. The spark plug must withstand pressures upto at least _____ bar.

(A) 35 (B) 45

(C) 65 (D) 55

56. In S.I. engine the maximum power is obtained at which A/F ratio?

(A) 17:1 (B) 14:1

(C) 12.5:1 (D) 15.5:1

57. The material used for pistons in highly rated engines with higher piston speed is _____

(A) Cast iron (B) Aluminum alloy

(C) Cast steel (D) All of the above

58. The pipe that carries the prepared mixture to the engine cylinders is called as

(A) Intake manifold (B) Exhaust manifold

(C) Intake valve (D) Exhaust valve

59. The material suitable for the belts used in agriculture equipment is _____

(A) cotton (B) rubber

(C) leather (D) balata gum

60. What is the speed of belt used for efficient transmission of power in belt drives?

(A) 20 m/s – 25 m/s (B) 20 m/s – 22.5 m/s

(C) 22.5 m/s – 25 m/s (D) 20 m/s – 30 m/s

61. What is the usual included angle for v belt?

(A) 20° – 30° (B) 60° – 80°

(C) 40° – 60° (D) 30° – 40°

62. The minimum number of teeth on smaller sprocket required to smooth operation of chain drive in moderate speed is _____

(A) 15 (B) 17

(C) 21 (D) 25

63. The cone clutches became obsolete because of the following reason

(A) small cone angles
(B) exposure to dirt and dust
(C) difficulty in disengaging
(D) all of these

64. A sliding bearing which can support steady loads without any relative motion between the journal and the bearing is called

(A) zero film bearing
(B) boundary lubricated bearing
(C) hydrodynamic lubricated bearing
(D) hydrostatic lubricated bearing

65. Which of the following is the taper on a rectangular sunk key?

(A) 1 in 16
(B) 1 in 100
(C) 1 in 32
(D) 1 in 48

66. The helix angle for single helical gears ranges from

(A) 10° to 15°
(B) 15° to 20°
(C) 20° to 35°
(D) 35° to 50°

67. What is the required minimum number of teeth on the pinion in order to avoid interference for 20° stub gear system?

(A) 12
(B) 14
(C) 18
(D) 32

68. According to Indian standard specifications, 100 H 6/g5 means that the

(A) actual size is 100 mm
(B) difference between the actual size and basic size is 100 mm
(C) basic size is 100 mm
(D) none of the above

69. Which one of the following is the application of interference fit?

(A) Wheel sets
(B) Bearing bushes
(C) Belt pulleys
(D) Spline shafts

70. Which of the following statements is true for a basic shaft?

(A) lower deviation is zero
(B) upper deviation is zero
(C) lower and upper deviations are zero
(D) none of these

A

71. According to Indian standards, how many tolerance grades exist?
(A) 8 (B) 12
(C) 18 (D) 20

72. The dimensional difference between the maximum material limits of the mating parts is known as
(A) Allowance (B) Clearance
(C) Fit (D) Limit

73. Which one of the following is the symbol of locational clearance fit?
(A) H11/c11 (B) H9/d9
(C) H7/g6 (D) H7/h6

74. The permissible variation of the size is called
(A) Limits (B) Deviation
(C) Tolerance (D) Fit

75. When a thread is designated as M10 × 1.25, the value 10 indicates
(A) Nominal diameter (B) Pitch diameter
(C) Major Diameter (D) Minor Diameter

76. Name the drawing instrument used for drawing small circles and arcs in ink.
(A) Small bow compass (B) Small bow ink pen
(C) Ink pen (D) Small bow divider

77. Name the type of projection in which the projectors from an object are parallel to each other and inclined to the plane of projection.
(A) Oblique projection (B) Orthographic projection
(C) Isometric projection (D) Equilateral projection

78. The degree by which the volume of a material is occupied by pores is indicated by the term _____
(A) Voidocity (B) Moisturing
(C) Porosity (D) Modulus

79. The defect caused during seasoning of timber in the following is
(A) Dry rot (B) Honey combing
(C) Wet rot (D) Knot

80. The edges formed by the intersection of plane surfaces of brick are

(A) Arrises (B) Bats

(C) Closer (D) Quoin

81. What is the triangular upper part of a wall formed at the end of a pitched roof?

(A) Hip (B) Gable

(C) Valley (D) Dormer

82. The type of Ashlar masonry which occupies an intermediate position between the rubble masonry and Ashlar masonry

(A) Ashlar block-in-course masonry

(B) Ashlar Chamferred masonry

(C) Ashlar rough tooled masonry

(D) Ashlar fine masonry

83. The builtup covered area of building measured at floor level of any storey of a building is

(A) Circular area (B) Volumetric area

(C) Cubical content area (D) Plinth area

84. A frontage margin or open space in front of the abutting street or road is known as

(A) Abutment (B) Approach

(C) Setback (D) Courtyard

85. Unit of measurement of formworks of R.C.C.

(A) m. (B) sq.m.

(C) cu.m. (D) kg.

86. If the bed level of irrigation canal is lower than the drainage, the type of CDW is known as

(A) Level crossing (B) Aqueduct

(C) Via-duct (D) Super passage

87. When the soil pores of within the root zones of the plant are deprived of normal air circulation due to high water table, the crop land is said to be

(A) Waterlogged
(B) Salinated
(C) Rendered
(D) Eroded

88. The limiting length of perpendicular offset is _____ m.

(A) 05
(B) 10
(C) 15
(D) No limit

89. Angle between the preceding line and the succeeding line is _____ angle.

(A) Reflection
(B) Deflection
(C) Indirect
(D) Direct

90. The space segment of a GPS deals with

(A) Control
(B) Its application
(C) Ground based time
(D) Satellite systems

91. The basic purpose of the drawing area in AutoCAD screen is

(A) To provide space to prepare a drawing
(B) To allow the entry of various commands
(C) To pull down menus
(D) To give commands

92. The command used in 3D drawing to create a donut shaped solid in AutoCAD is

(A) DONUT
(B) SOLID
(C) SHAPE
(D) TORUS

93. The function key used in AutoCAD for turning on or off ORTHO is

(A) F 10
(B) F 8
(C) F 6
(D) F 4

94. The ratio of lateral strain to linear strain is called _____

(A) Poisson's ratio
(B) Primary ratio
(C) Young's ratio
(D) Volumetric ratio

95. The unit of force in M.K.S. system

(A) Newton
(B) Kilogram
(C) Gram
(D) Joule

96. Name the camber which is parabolic or elliptical in shape

(A) Straight line camber
(B) Parabolic camber
(C) Curved camber
(D) Mitred camber

97. The level of the highest flood ever recorded of a river or stream is

(A) OWL
(B) HWL
(C) MWL
(D) HFL

98. The operation of laying out sleepers on the compacted formation on a track is known as

(A) Turn tabling
(B) Traversing
(C) Plate laying
(D) Marshalling

99. The pipe installed in the house drainage to preserve the water seal of a trap is

(A) Anti-siphonage pipe
(B) Vent pipe
(C) Waste pipe
(D) Soil pipe

100. The maximum permissible temperature for domestic supply is

(A) 0° - 05°C
(B) 05° - 10°C
(C) 10° - 15°C
(D) 15° - 20°C

A

SPACE FOR ROUGH WORK