RRB ALP CBT-II (Machinist) Official Paper (Held On: 06 May, 2025 Shift 2) (Previous Year Paper)

RRB Assistant Loco Pilot (ALP) • 2025 • 175 questions • 150 minutes • Answer key

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PART A

Q1. A can complete a work in 14 hours, while B can do the same work in 21 hours. A started working alone. After how many hours should B join A so that the total work is completed in 10 hours?

(a) 3
(b) 4.5
(c) 3.5
(d) 4

Q2. Why is regular maintenance of HVAC systems considered a medium ECO?

(a) It decreases the system's energy consumption.
(b) It prevents overheating of the system.
(c) It increases the cost of energy.
(d) It speeds up system breakdowns.

Q3. The speed of a train is 144 km/hr. The distance covered by the train in 12 seconds is:

(a) 480 m
(b) 103 m
(c) 518 m
(d) 78 m

Q4. In a certain code language, 'GOES' is coded as '8624' and 'SNYC' is coded as '3817'.
What is the code for 'S' in the given code language?

(a) 8
(b) 4
(c) 3
(d) 2

Q5. In a certain code language, 'BOAT' is coded as '8654' and 'AIDS' is coded as '3517'.
What is the code for 'A' in the given code language?

(a) 6
(b) 5
(c) 3
(d) 8

Q6. The weights (in kg) of 20 students of a class have been recorded as 35, 42, 56, 44, 55, 44, 36, 44, 49, 48, 55, 35, 44, 47, 49, 48, 56, 44, 37 and 35. The modal weight (in kg) of the class is:

(a) 47
(b) 37
(c) 44
(d) 45

Q7. Pipes A and B can fill a rectangular tank in 40 minutes and 120 minutes, respectively. Pipe C can empty the completely filled same tank in 240 minutes. If pipes A, B and C are opened at the same time, then how many minutes will it take to fill the tank?

(a) 342/8
(b) 342/7
(c) 322/7
(d) 343/7

Q8. Which of the following actions involves scientific work?

(a) Spending time conversing with friends
(b) Climbing up the stairs
(c) Watching a film
(d) Holding a large load on one's head while standing motionless

Q9. How is a voltmeter connected in a circuit to measure potential difference?

(a) In parallel across the points where potential difference is to be measured
(b) In series with the circuit
(c) Neither in series nor in parallel
(d) Directly to the power source only

Q10. Find the minimum value of $2x^2 - 5x - 3$ and also find x.

(a) • 6.125 and x = 1.25
(b) -6.125 and x = 0.25
(c) 6.125 and x = 1.25
(d) 6.125 and x = 1.2

Q11. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) CGXF
(b) UYPW
(c) QULS
(d) JNEL

Q12. Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

AD8, FI16, KN24, ?

(a) OS32
(b) OR35
(c) PS35
(d) PS32

Q13. Select the pair which follows the same pattern as that followed by the two sets of pairs given below. Both pairs follow the same pattern.

ARF: YTH

WVJ: UXL

(a) MEL: HZN
(b) SZN: QBP
(c) QEB: NBD
(d) KXF: HZH

Q14. By how much is 60% of 50 greater than 4/5 of 35?

(a) 2
(b) 3
(c) 4

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(d) 1

Q15. Which of the following is NOT an SI unit?

(a) Hour
(b) Metre
(c) Mole
(d) Kilogram

Q16. The speed of a bus is 6 metres/second. The distance (in kilometres) travelled by the bus in 8 hours and 20 minutes is:

(a) 185
(b) 180
(c) 184
(d) 175

Q17. Three partners, A, B and C, shared the profit in a business in the proportion of 11: 13: 16. They invested their capitals for 7 months, 5 months and 12 months, respectively. What was the ratio of their capitals?

(a) 165 :273 :140
(b) 96: 135: 101
(c) 3:5:8
(d) 21:35:44

Q18. T-Square is used to _____in engineering drawings.

(a) support the drawing paper/tracing paper for making drawings
(b) draw curved lines on drawing sheets
(c) draw horizontal lines, parallel lines and to guide/hold the setsquares
(d) transfer dimensions and dividing lines into a number of equal parts

Q19. Which of the following features is unique to Telegram compared to WhatsApp and Facebook Messenger?

(a) Voice and video calling capabilities
(b) End-to-end encryption for all messages
(c) Ability to create channels for broadcasting messages to large audiences
(d) Integration with Facebook for seamless sharing

Q20. Calculate the resistance of the bulb filament if it draws 200 mA current from 220 V source.

(a) 0Ω
(b) 1100 Ω
(c) 220 Ω
(d) 44 Ω

Q21. Which of the following processes causes accumulation of heavy metals such as lead and mercury in soil?

(a) Ozone layer depletion
(b) Improper disposal of industrial wastes
(c) Water evaporation
(d) Natural soil formation

Q22. What should come in place of the question mark (?) in the given series?

WU5, SQ7, NL11, ?

(a) GE17
(b) HF13
(c) GE13
(d) HE15

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Q23. Which of the following statements is correct?

(a) All metals are poor conductors of heat.
(b) Plastic and wood allow heat to pass through them easily.
(c) Dry air is a good conductor of heat.
(d) Copper and aluminium are good conductors of heat

Q24. If 24 joules of work is done in moving a charge of 2 coulombs across two points, then what will be the correct voltage across these two points?

(a) 2 V
(b) 12 V
(c) 24 V
(d) 48 V

Q25. The two sides CB and BA of triangle ABC are produced to CE and BD, respectively, in such a way that angle DAC = 110° ; and angle ABE = 130°. Which of the following options is true?

(a) AC <AB < BC
(b) BC <AC <AB
(c) AB <AC <BC
(d) BC <AB < AC

Q26. The marked price of an item is Rs. 27,500. The shopkeeper gave two successive discounts: the first discount was 20%, and the second was 30% of the first discount rate. What is the selling price of the item (in rupees)?

(a) 1,26,080
(b) 20,860
(c) 20,086
(d) 20,680

Q27. Which of the following letter-clusters should replace # and % so that the pattern and relationship followed between the letter-cluster pair on the left side of:: is the same as that on the right side of ::?

#: KHM:: OLQ: %

(a) #LIN, % = NKO
(b) #LIN, % = NLP
(c) #LIN, %= NKP
(d) #LIM, % = NKP

Q28. Which of the following statements is INCORRECT?

(a) In solids, heat transfer is typically carried out through conduction.
(b) Burning of feet on hot sand is an example of heat transfer by conduction.
(c) Conduction is the process of heat transfer that does not require any medium to transfer heat
(d) Conduction is the process of heat transfer from hotter body to colder body.

Q29. A man rides a bicycle from Point A to Point B in 10 minutes and comes back to Point A along the same path in 10 minutes. If the distance between Points A and B is 1 km, calculate his average velocity?

(a) 3.3 m/s
(b) 1.6 m/s
(c) 0 m/s
(d) 0.1 m/s

Q30. What is the dimensional equation of mass density (p)?

(a) [ML-3T2]
(b) [M0 L^3 T0]
(c) [ML-3T0]
(d) [M L-2 T0]

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Q31. What is the kinetic energy possessed by an object having mass 25 kg and moving with a uniform velocity of 2 m s^{-1}?

(a) 80 J
(b) 50 J
(c) 120 J
(d) 100 J

Q32. What is the value of 100 g in Sl units?

(a) 1 kg
(b) 0.1 kg
(c) 100 kg
(d) 10 kg

Q33. A mass m is moving with a velocity v and its kinetic energy is K. What will be the new kinetic energy if the velocity is doubled?

(a) 2K
(b) K
(c) 4 K
(d) K/2

Q34. Which of the following is a main greenhouse gas that is responsible for global warming?

(a) Nitrogen
(b) Helium
(c) Carbon Dioxide
(d) Oxygen

Q35. Which of the following tools is commonly used to support the 'Standardize' step in the 5S methodology?

(a) Labels and signs
(b) Cleaning supplies
(c) Floor markings
(d) Job cycle charts

Q36. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) GMKT
(b) EKJR
(c) VBZI
(d) IOMV

Q37. What should come in place of the question mark (?) in the given alpha-numeric series?

Y13, F11, L9, Q7, U5, X3, ?

(a) 22
(b) A1
(c) Z1
(d) Y1

Q38. Given below are two sets of numbers. Both the sets are formed using the same mathematical equations or follow a common pattern. Which of the given options follows the same set of mathematical equations or patterns as the sets given in the question?

1333-1730-2199-2746-3377

218-345-514-731-1002

(a) 123 - 146 - 171 - 198 - 227
(b) 38 - 51 - 66 - 83 - 102
(c) 3-10-29-66-127
(d) 3 - 6 - 11 - 18 - 27

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Q39. Two sets of numbers are given below. In each set of numbers, certain mathematical operation(s) on the first number results in the second number. Similarly, certain mathematical operation(s) on the second number results in the third number and so on. Which of the given options follows the same set of operations as in the given sets?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13-Operations on 13 such as adding/subtracting/multiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

988-494-444-534; 894-447-397-487

(a) 138 - 69 - 14 - 98
(b) 226 - 113 - 144 - 268
(c) 586 - 293 - 244 - 328
(d) 682-341-291-381

Q40. What is the first step to take in case of a power failure in a workshop?

(a) Continue working as usual
(b) Check if emergency lighting and backup power are functional
(c) Panic and leave the premises immediately
(d) Ignore the situation and wait for power to return

Q41. Which of the following is an ethical concern related to Information Technology?

(a) Enhancement of communication channels
(b) Privacy violations and data breaches
(c) Reduction in administrative costs
(d) Increased accessibility to educational resources

Q42. Which term is used to describe the closeness of the measured value to the standard or true value?

(a) Mean
(b) Precision
(c) Approximate
(d) Accuracy

Q43. Which of the following is NOT correct about Joule's law of heating?

(a) Heat produced in a resistor is directly proportional to the square of the current for a given resistance.
(b) Heat produced in a resistor is directly proportional to the time for which the current flows through the resistor.
(c) Heat produced in a resistor is directly proportional to the resistance for a given current.
(d) Heat produced in a resistor is inversely proportional to the square of the current for a given resistance.

Q44. Which of the following terms is used to describe the pollutants that originate from identifiable sources, such as factories or vehicles?

(a) Non-point Source Pollution
(b) Random Pollution
(c) Point Source Pollution
(d) Radicle Pollution

Q45. How does installing energy-efficient windows in an old building affect energy consumption?

(a) It has no effect on fuel consumption.
(b) It causes indoor temperatures to rise.
(c) It reduces heating and cooling costs in the building.
(d) It increases the need for artificial lighting.

Q46. Which of the following is generally the temperature range in a laboratory thermometer?

(a) -10°C to 110°C
(b) -10°C to 150°C
(c) -100°C to 130°C
(d) 35°C to 42°C

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Q47. A refrigerator seller offers a discount of 10% on its listed price of Rs. 57,500 and still earns a profit of 15%. The cost price of the refrigerator is:

(a) Rs. 45,000
(b) Rs. 42,000
(c) Rs. 40,000
(d) Rs. 48,000

Q48. A person saves 50% of his income. If his expenditure is 440, then his income (in Rs.) is:

(a) 600
(b) 880
(c) 920
(d) 560

Q49. Which of the following is the correct statement of Ohm's Law?

(a) If the potential difference across the two ends of a conductor is 1 V and the current through it is 1A, then the resistance of the conductor is 20.
(b) The potential difference across the ends of a conductor is inversely proportional to the current flowing through it.
(c) The potential difference across the ends of a conductor is directly proportional to the current flowing through it.
(d) Current through a resistor is directly proportional to its resistance.

Q50. A shopkeeper sells sugar at 30 per kg, which he has bought at 24 per kg. Being dishonest, he also gives only y gm of sugar instead of 1000 gm that is mentioned on the weight. In this way, the shopkeeper manages to make an overall profit of 66 2/3 %. What is the value of y?

(a) 600
(b) 720
(c) 800
(d) 750

Q51. What is the SI unit for solid angle?

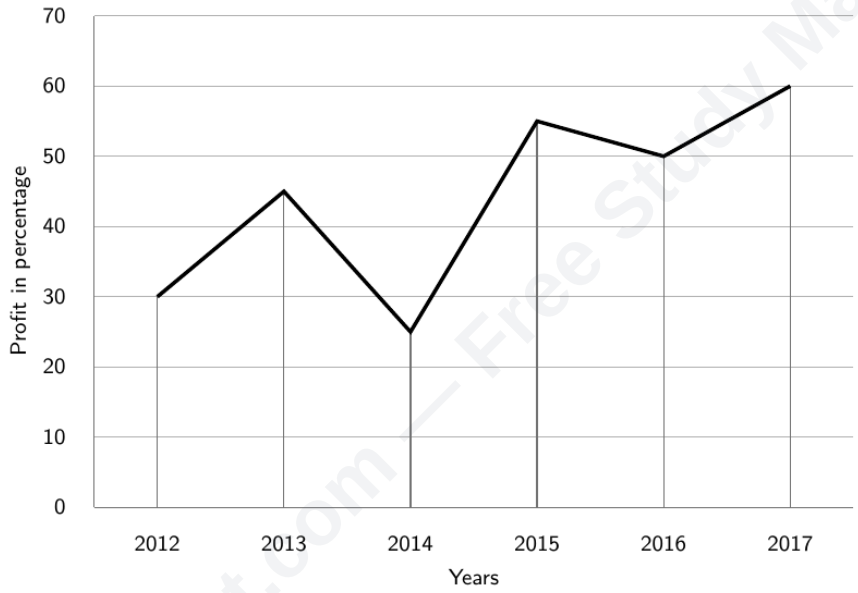
(a) Metre
(b) Candela
(c) Radian
(d) Steradian

Q52. Eight people are sitting in two parallel rows containing 4 people each in such a way that there is equal distance between adjacent persons. In row 1-A, B, C and D are seated and all of them are facing south. In row 2-P, Q, R and S are seated and all of them are facing north. Thus each person faces another person from the other row. No one sits to the left of B. R faces the person who sits second to the right of D. C faces the person who is the immediate neighbour of Q and R, B does not face S. Who amongst the following faces P?

(a) D
(b) A
(c) B
(d) C

Q53. Study the given graph and answer the question that follows.

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What is the average profit percentage of the given years?

(a) 44%
(b) 43.4%
(c) 44.1%
(d) 45%

Q54. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusion(s) logically follow(s) from the statements.

Statements:

I. All books are pencils.

II. All pencils are cardboards.

III. All cardboards are notebooks.

Conclusions:

I. Some notebooks are pencils.

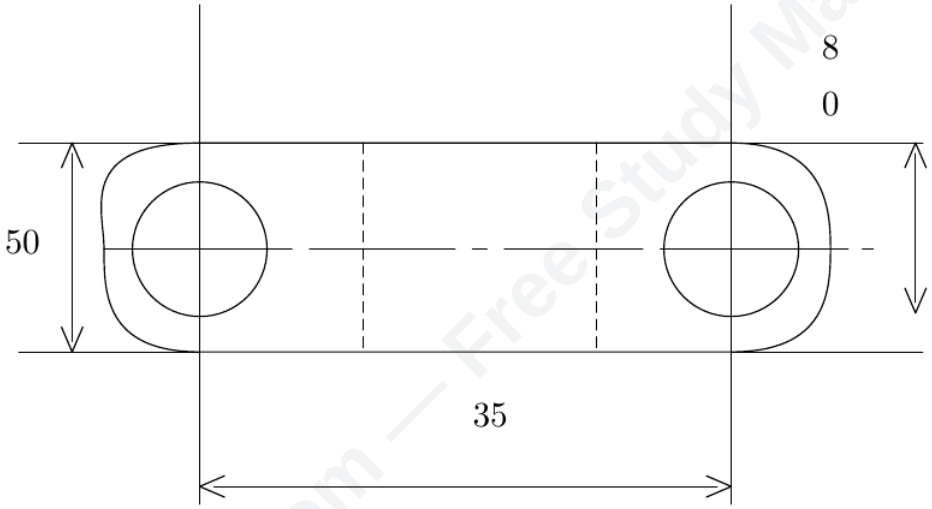
II. Some cardboards are books.

III. Some notebooks are books.

(a) Only conclusions I and II follow.
(b) All conclusions I, II and III follow
(c) Only conclusions I and III follow.
(d) Only conclusions II and III follow.

Q55. What type of view is represented of the given machine component?

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(a) Oblique view
(b) Orthographic view
(c) Perspective view
(d) Isometric view

Q56. In order to resolve disputes arising from cyber crime, such as tampering with computer source documents, hacking the computer system, using password of another person and publishing sensitive personal data of others without their consent, a forum has been established by the Central Government (India) in accordance with the provisions contained under Section 48(1) of the Information Technology Act, 2000. What is the name of that forum?

(a) Cyber Appellate Tribunal
(b) National Cybercrime Reporting Station
(c) Cybercrime Reporting Tribunal
(d) Internet Crime Complaint Center

Q57. When reporting a fire in an emergency, what is the most critical information to provide to emergency services?

(a) The weather conditions at the time of the fire
(b) How the fire started and if someone is injured or missing
(c) The likely cause of the fire and the building owner's name
(d) The colour of the smoke and the direction it is moving

Q58. Why does a combination of two thin blankets keep you warmer in the winter than a single thick blanket?

(a) Two thin blankets allow more heat to escape, keeping you warmer.
(b) Two blankets create an additional insulating layer of air, reducing heat loss
(c) Two thin blankets generate more heat than one thick blanket.
(d) Two thin blankets absorb more heat from the surroundings than one thick blanket.

Q59. What is necessary for a circuit to have electric current flowing through it?

(a) A closed conducting path with a voltage source
(b) Only wire
(c) Only switch
(d) Only bulb

Q60. Which of the following is NOT correct?

(a) An object moving with a constant velocity represents uniform motion.
(b) The motion of satellite around Earth in a circular orbit is uniform circular motion.
(c) A person jogging in the park is not an example of uniform circular motion.
(d) The distance-time graph of an object moving with uniform speed is not a straight line:

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Q61. Among three partners A, B and C in a business. The capital of B is equal to half the difference between thrice the capital of C and twice the capital of A. If at the end of the year, they received a profit of 25,415, what is the share of C (in)?

(a) 9,166
(b) 8,666
(c) 11,666
(d) 10,166

Q62. E, F, G, H, P, Q, and R, are sitting around a circular table facing the centre. F sits third to the left of H. Only two people sit between H and G when counted from the right of H. Q is an immediate neighbor of G. P is NOT an immediate neighbour of H. E is an Immediate neighbour of Q. Who sits second to the left of E?

(a) H
(b) R
(c) G
(d) P

Q63. The cost of painting a spherical ball at the rate of Rs. 2.50 per cm^2 is 13,860. What is the diameter of the ball? (Use $\pi = 22/7$)

(a) 40 cm
(b) 48 cm
(c) 21 cm
(d) 42 cm

Q64. In an electrical circuit, 'n' number of 10 Ohm resistors are connected in parallel. When one of the resistors is eliminated, the overall resistance of the circuit is _____.

(a) $1/(n^2)$
(b) Zero
(c) 1/n
(d) 1/(n-1)

Q65. What is the ratio of areas between two consecutive format sheet sizes created by halving the length or doubling the width?

(a) 2:1
(b) 1:4
(c) 1:2
(d) 4:1

Q66. If 'A' stands for '÷', 'B' stands for 'x', 'C' stands for '+' and 'D' stands for '-', then what will come in place of the question mark (?) in the following equation?

47 D 25 A 5C2B9=?

(a) 62
(b) 60
(c) 58
(d) 56

Q67. What is the primary purpose of netiquette in online communication?

(a) To ensure polite and respectful interactions
(b) To enhance internet connection speed
(c) To improve typing speed
(d) To increase the number of followers on social media

Q68. The thickness of a thread is measured by a student using a microscope of magnification 100. After making 30 observations, he finds the average width of the thread is 5.7 mm. What is the estimated thickness of the thread?

(a) 171 mm
(b) 0.057 mm

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(c) 0.57 mm
(d) 0.09 mm

Q69. The interest of $(10r)^2$ in r time at rate r/10 % is _____.
(a) (r^4)/10
(b) 10r^4
(c) (r^4)/20
(d) (r^4)/5

Q70. A force of 6 N is exerted on an object, resulting in its displacement of 2 m in the direction of the force. If the force is constant during the displacement, what is the work done in this case?
(a) 25 J
(b) 12 J
(c) 3 J
(d) 10 J

Q71. If 21.6: x:: x: 29.4, and x > 0 then find the value of x.
(a) 23.9
(b) 23.3
(c) 25.4
(d) 25.2

Q72. Which of the following statements is NOT true?
(a) Clinical thermometer should not be used to measure the temperature of boiling water.
(b) Clinical and laboratory thermometers are the same.
(c) The range of clinical thermometer is 35 to 42°C.
(d) Laboratory thermometer cannot be used to measure body temperature.

Q73. Which of the following options is NOT a necessary characteristic of a kite?
(a) At least one diagonal is bisected by the other diagonal.
(b) The diagonals are perpendicular to each other.
(c) The pairs of opposite angles are bisected by the corresponding diagonals.
(d) At least one pair of opposite angles is congruent.

Q74. A porter lifts a 10 kg luggage from the ground and places it on his head, 2.5 m above the ground. Calculate the work done by him on the luggage. (Take g = 10m s^(- 2))
(a) 200 J
(b) 100 J
(c) 250 J
(d) 250 N

Q75. What should come in place of the question mark (?) in the given series?
179 171 163? 147 139
(a) 155
(b) 157
(c) 151
(d) 153

Q76. If x + y + z = 0 then find the value of $(x^2)/2yz + (y^2)/2xz + (z^2)/2xy$
(a) 2/5
(b) 3/2
(c) 3/5
(d) 2/3

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Q77. In a certain code language, 'WIDE' is coded as '8694' and 'INKS' is coded as '3917', 7 What is the code for 'I' in the given code language?

(a) 8
(b) 3
(c) 7
(d) 9

Q78. A shopkeeper allows a discount of 18% on the marked price of an article and sells it for 2,870. Find the marked price of the article.

(a) Rs. 3,200
(b) Rs. 3,350
(c) Rs. 3,460
(d) Rs. 3,500

Q79. Which is the least number that must be subtracted from 5563 to make it exactly divisible by 18?

(a) 5
(b) 7
(c) 3
(d) 1

Q80. Study the given table carefully and answer the question that follows.

	Number of students who	
Appeared for the exam	Passed the exam	
Class IX	104	89
Class X	63	47

What was the total number of students who failed the exam from classes IX and X?

(a) 21
(b) 31
(c) 28
(d) 33

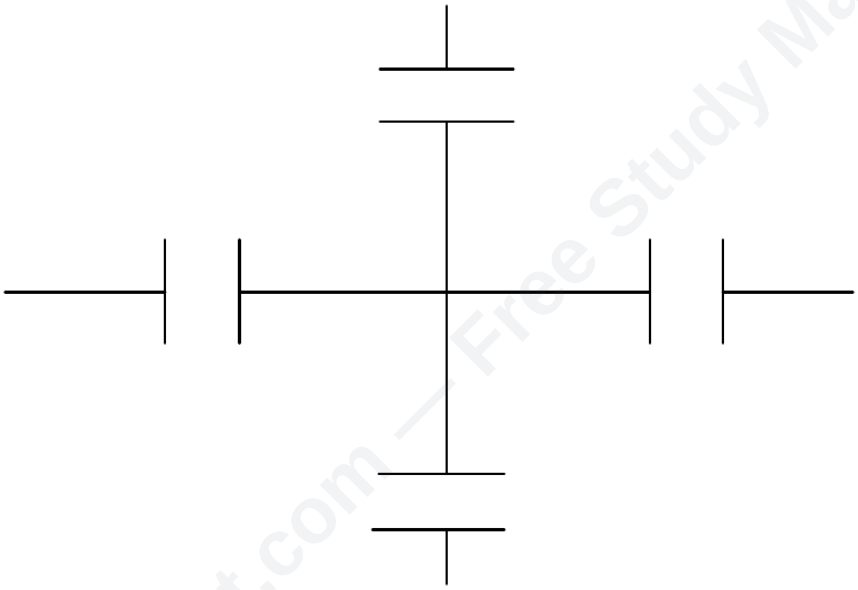
Q81. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster pair)

(a) QL-NT
(b) BW-YE
(c) KF-HM
(d) DY-AG

Q82. Identify the orthographic symbol of a pipe fitting shown in the figure.

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(a) Tee
(b) Cross
(c) Union
(d) Bend

Q83. Read the given statement and conclusions carefully. Assume that the information given in the statement is true, even if it appears to be at variance with commonly known facts, and decide which of the given conclusion(s) logically follow(s) from the statement.

Statement:

Over the past year, respiratory illnesses have increased significantly in city W. According to a public health study, this increase is linked to the increase in the number of cars, which raises air pollution levels on the roads.

Conclusions:

I. Increased vehicular traffic contributes to higher levels of air pollution.

II. Improving public transportation will reduce respiratory illnesses in city W.

(a) Both conclusions I and II follow.
(b) Neither conclusion I nor II follows.
(c) Only conclusion II follows.
(d) Only conclusion 1 follows.

Q84. An object's potential energy is equal to _____.

(a) Change in velocity
(b) Change in acceleration
(c) Transfer of energy
(d) Loss of energy

Q85. Which of the following is the primary reason for adopting scientifically designed methods for safely disposing of toxic waste from automobiles?

(a) To improve vehicle lifespan by minimising mechanical wear
(b) To increase vehicle performance by optimising engine efficiency
(c) To reduce fuel consumption and improve overall efficiency
(d) To protect human health from harmful fumes and dust in the air

Q86. Given below are two sets of numbers. Both the sets are formed using the same mathematical equations or follow a common pattern. Which of the given options follows the same set of mathematical equations or patterns as the sets given in the question?

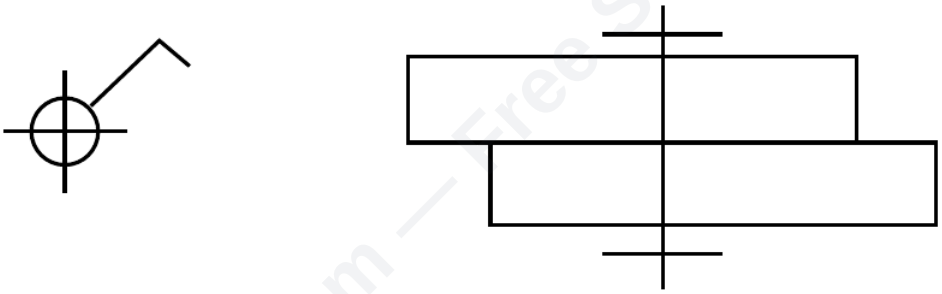
4-9-25-64-169; 16-49-121-324-841

(a) 64 - 100 - 144 - 196 - 256

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(b) 16 - 36 - 64 - 100 - 144
(c) 4 - 16 - 36 - 64 - 100
(d) 64-225-529-1444-3721

Q87. Examine the symbolic representation of the hole and rivet provided below. According to BIS SP 46-2003, what does this symbol represent?



(a) Drilled in the workshop
(b) Fitted in the workshop
(c) Drilled and fitted on-site
(d) Drilled on-site

Q88. The ABC Association meeting will be held on the 2nd Sunday of next month. The registration fee is Rs. 50 per person. Participants will be provided meals at an additional cost of Rs. 24. If the number of people who paid for meals is 100 more than those who did not pay for meals, and the total amount collected from registrations and meals is Rs. 69,400, then how many people registered and how many meals should be prepared?
(a) 1100 and 1100
(b) 1100 and 600
(c) 1100 and 50
(d) 500 and 600

Q89. What should come in place of the question mark (?) in the given series?
62 73 87 104 124 ?
(a) 142
(b) 147
(c) 134
(d) 153

Q90. What should come in place of the question mark (?) in the given alpha-numeric series?
Q16, O14, M12, K10, I8, ?
(a) G4
(b) H6
(c) G6
(d) J6

Q91. Which element is used in thermometers?
(a) Bromine
(b) Mercury
(c) Gallium
(d) Lead

Q92. Two trains are running in opposite directions at the same speed. The length of each train is 175 m. If they cross each other in 7 s, the speed of each train is:
(a) 75 km/hr
(b) 90 km/hr
(c) 85 km/hr
(d) 80 km/hr

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Q93. If the length, the breadth, and the height of a cuboid are 5 m, 2 m, and 50 cm, respectively, then find its volume.

(a) 500 m^3
(b) 20 m^3
(c) 50m^3
(d) 5 m^3

Q94. If an electric load draws a current of 2 A for 1 second, then calculate the number of electrons (with charge 1.6 × 10^(-19) °c) passing through the load.

(a) 1.25x10^(20)
(b) 0.25 x 1019
(c) 0.25 x 1020
(d) 1.25 x1019

Q95. An electric heater of resistance 50 uses a current of 3 A. Determine the heat generated in 20 seconds.

(a) 5000 J
(b) 1000 J
(c) 9000 J
(d) 60 J

Q96. Which of the following keyboard shortcuts on a Windows 10 home screen opens the item's properties?

(a) Insert + Alt
(b) F2 + Alt
(c) Tab + Del
(d) Alt + Enter

Q97. Which of the following is NOT a good heat conductor?

(a) Fur
(b) Copper
(c) Iron
(d) Aluminum

Q98. A, B, C, D, E, and F live on six different floors of the same building. The lowest floor of the building is numbered 1, the floor above it is numbered 2, and the top floor is numbered 6. E lives on an even-numbered floor but not on floor 4. The sum of the floor numbers where E and B live is 9. Only three people live between A and C. The sum of the floor numbers where F and C live is 3. What is the sum of the floor numbers where B and F live?

(a) 6
(b) 4
(c) 7
(d) 5

Q99. Under which Section of the Factories Act, of 1948, is the employment of women and children near cotton openers prohibited?

(a) Section 25
(b) Section 21
(c) Section 27
(d) Section 29

Q100. Four chairs and a table set up cost 22,000. Determine the table's cost, if it is Rs. 2,000 more expensive than the chair.

(a) Rs. 6,000
(b) Rs. 5,000
(c) Rs. 4,000
(d) Rs. 6,500

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PART B

Q101. Which property is the most important for materials used in automobile crash zones?

(a) High brittleness
(b) High hardness
(c) High stiffness
(d) High toughness

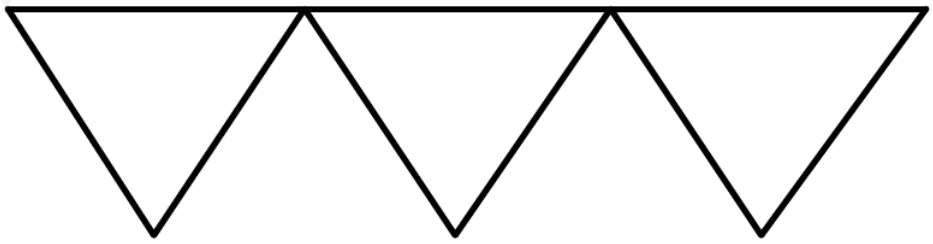
Q102. Study the given table carefully and answer the question that follows.

	Number of students who	
	Appeared for the exam	Passed the exam
Class IX	104	89
Class X	63	47

What was the total number of students who failed the exam from classes IX and X?

(a) 33
(b) 21
(c) 31
(d) 28

Q103. Observe the given roughness grade symbol and identify the corresponding roughness grade number whose corresponding roughness value is 0.2 µm.



(a) N3
(b) N1
(c) N2
(d) N4

Q104. Match the following types of lines with their correct descriptions according to their orientation and characteristics.

Description	Type of Line
A. A line that is neither parallel to a horizontal plane nor perpendicular to it.	1. Horizontal Line
B. A line that is perpendicular to horizontal lines.	2. Vertical Line
C. A line that changes its direction continuously.	3. Inclined Line
D. A line that is parallel to a horizontal plane.	4. Curved Line

(a) A-3, B-2, C-4, D-1
(b) A-2, B-1, C-4, D-3
(c) A-2, B-3, C-4, D-1
(d) A-1, B-2, C-3, D-4

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Q105. Wrong setting of machine, wrong use of a tool, defect in measuring tools, defective metal, and carelessness of the mechanic have no effect in the utility of the part. This is an advantage of_____.

(a) interchangeability
(b) deviation
(c) tolerance
(d) limit

Q106. Which of the following best describes the application of Atomic Hydrogen Welding (AHW)?

(a) It is used for all ferrous and non-ferrous metals with a high-temperature arc.
(b) It is commonly used over modern welding methods due to its efficiency.
(c) It generates a lower temperature arc than other arc welding processes.
(d) It is mainly preferred for low-temperature welding of soft metals.

Q107. Which of the following is the primary reason why copper is widely used as a conductor in electrical wiring?

(a) Copper has low resistance and high conductivity.
(b) Copper is abundant and inexpensive.
(c) Copper has high resistance to electricity.
(d) Copper has a low melting point.

Q108. Which of the following calipers are used for marking lines, parallel to inside and outside edges and for locating the centre of round bars?

(a) Firm joint calipers
(b) Leg and point calipers
(c) Simple calipers
(d) Spring joint calipers

Q109. In the standard marking of a grinding wheel (e.g. 51-A 46 H 5 V 8), what does the symbol 'H' represent?

(a) Type of abrasive used in the wheel
(b) Grain size of the abrasive particles
(c) Type of bond used in the wheel
(d) Grade of the grinding wheel

Q110. During a lathe operation, the influence of machining allowance on the total depth of cut taken is that:

(a) it directly determines the depth of cut in each pass
(b) it directly determines the feed rate corresponding to the speed
(c) it sets the total material to be removed, which is then divided into multiple cuts
(d) it has no influence on the depth of cut

Q111. Match the following.

(A)	Threading tool	(P)	[figure]
(B)	Profile tool	(Q)	[figure]
(C)	Facing tool	(R)	[figure]
(D)	Knurling tool	(S)	[figure]

(a) A-P, B-R, CQ, D-S
(b) A-S, B-R, C-Q, D-P
(c) A-S, B-Q, C-R, D-P
(d) A-S, B-R, C-P, D-Q

Q112. Find the lateral surface area of a cube with side length 5 cm.

(a) 200 cm^2
(b) 100 cm^2
(c) 150 cm^2
(d) 125 cm^2

Q113. Which of the following statements is NOT correct for using scribers?

(a) Place a cork on the point when in use to prevent accidents.
(b) Scriber points are very sharp, so they are to be handled very carefully.
(c) While scribing lines, the scriber is used like a pencil.
(d) Do not put the scriber in your pocket.

Q114. In a series circuit, three resistors of 10 ohms, 20 ohms, and R ohms are connected in series with a 12 V battery. What is the value of resistance R if current flowing in the circuit is 0.2 A?

(a) 30 ohms
(b) 20 ohms
(c) 10 ohms
(d) 40 ohms

Q115. A material with high toughness must have:

(a) high ductility and low strength
(b) low strength and low ductility
(c) high strength and low ductility
(d) high strength and high ductility

Q116. Which type of spindle drive motor is preferred in CNC machine tools due to advancements in microprocessor-based technology?

(a) Three-phase AC induction motor
(b) Single-phase AC synchronous motor
(c) Separately excited DC shunt motor
(d) Series excited DC motor

Q117. What is the unit of measurement used for thread pitch in the metric system?

(a) Degrees
(b) Newtons
(c) Threads per inch (TPI)
(d) Millimetres (mm)

Q118. What is the primary function of the drill head in a drilling machine?

(a) It supports the drill table and workpiece during operation.
(b) It holds the cutting tool securely in place.
(c) It controls the coolant flow during drilling operations.
(d) It houses the driving and feeding mechanism for the spindle.

Q119. Why is a Vernier height gauge preferred over a simple steel rule for height 8 measurement?

(a) It provides more precise measurements.
(b) It is cheaper than steel rule.
(c) It does not require a surface plate.
(d) It is comparatively more portable.

Q120. What is a possible consequence if a CNC machine stops suddenly during actual cutting movement?

(a) Automatic tool replacement without any damage
(b) Tool breakage and tool marks on the workpiece
(c) No effect on the tool or the workpiece
(d) Only a minor delay in restarting the program

Q121. What is the typical temperature range of a mercury-based clinical thermometer?

(a) • 10°C to 110°C
(b) 0°C to 100°C
(c) 0°C to 50°C
(d) 35°C to 42°C

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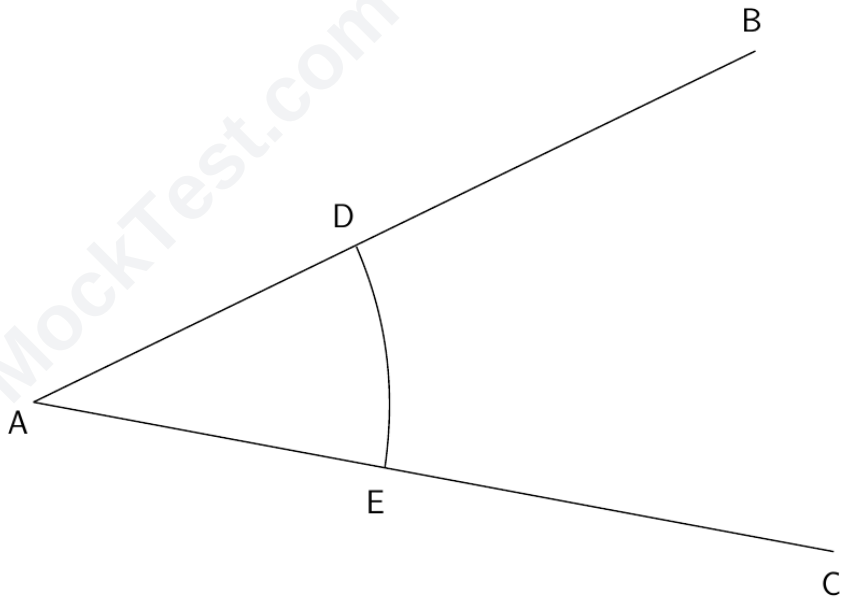
Q122. Which of the following colours is commonly used for caution signs?

(a) Green
(b) Yellow
(c) Blue
(d) Red

Q123. In an ISO system of Limits and Fits (ISO:286-1:1998), the tolerance size is designated as :

(a) basic value followed by symbol composed of a letter and number
(b) basic value followed by a number
(c) basic value alone
(d) basic value followed by a letter

Q124. In the process of bisecting angle BAC in the given figure, why do we draw arcs from points D and E?



(a) To mark equal lengths
(b) To find midpoint AB
(c) To intersect above A
(d) To intersect line AC

Q125. Which of the following options correctly describes the axis convention in a CNC turning centre?

(a) The spindle axis is designated as Y and the radial axis toward the tool post is X.
(b) The spindle axis is designated as Z and the radial axis away from the tool post is Y.
(c) The spindle axis is designated as X and the radial axis toward the tool post is Z.
(d) The spindle axis is designated as Z and the radial axis toward the tool post is X.

Q126. Which type of line is used to represent hidden edges or surfaces in a technical drawing, as per BIS SP 46-2003?

(a) Continuous thin line
(b) Chain thin line
(c) Dashed thin line
(d) Continuous thick line

Q127. _____are the greatest option for experts due to their durability and flexibility.

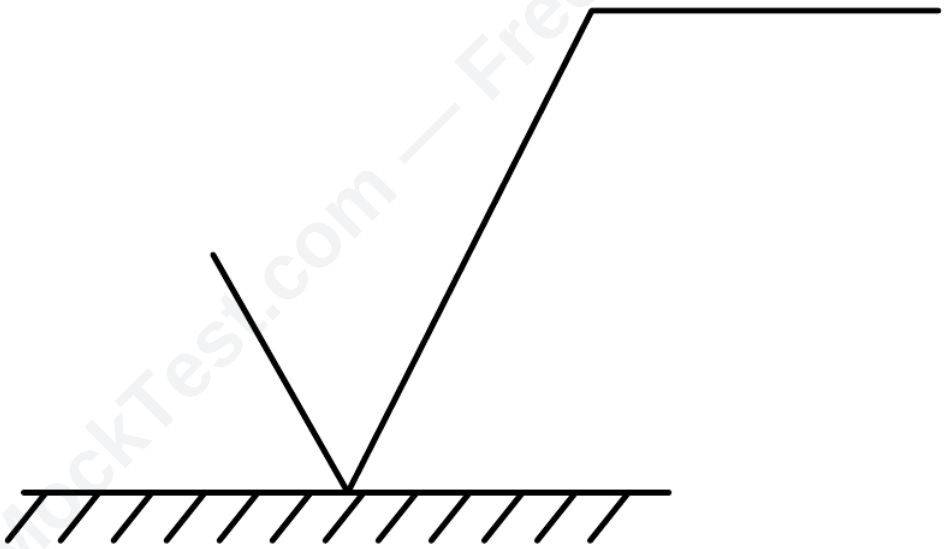
(a) High-carbon steel blades
(b) Bi-metal blades
(c) Fine-toothed blades
(d) Coarse-toothed blades

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Q128. As we know from the graduation of micrometer, if we give one full round to thimble, its spindle moves ½ mm forward or backward. Therefore, one part of the thimble is its_____.

(a) Least count
(b) Pitch
(c) Lead
(d) MSR

Q129. What does the surface finish symbol shown in the given figure represent?



(a) The surface should be coated without material removal.
(b) The surface must be left in its cast or forged state.
(c) No machining is required on this surface.
(d) A specific surface texture requirement is indicated.

Q130. Which type of rake angle is generally used for milling materials that produce continuous chips?

(a) Zero rake
(b) Positive rake
(c) Negative rake
(d) Neutral rake

Q131. When passing stationary vehicles, keep a watch on_____ who may come out suddenly from the front of the stationary vehicle. While overtaking, it should be done on the_ side. Always keep a good_____ between your vehicle and others.

(a) drivers; left; space
(b) vehicles; right; gap
(c) cyclists; left; interval
(d) pedestrians; right; distance

Q132. Fine-toothed blades are better suited for:

(a) infrequent use
(b) cutting metals
(c) cutting wood and plastic
(d) experts due to their durability and flexibility

Q133. Which of the following metals has the lowest melting point?

(a) Mercury
(b) Lead
(c) Iron
(d) Gold

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Q134. If the basic size of the diameter of a shaft is 80 mm and the variation limit of ± 0.07 mm is given, then its high limit and low limit are___ and_____.

(a) 79.93, 80.07
(b) 79.00, 80.07
(c) 80.00, 79.93
(d) 80.07, 79.93

Q135. The type of feed primarily used for grooving operations on a lathe is _____feed.

(a) angular
(b) rotary
(c) cross
(d) longitudinal

Q136. During the turning operation on lathe, if D is the initial diameter and d is the final diameter of the work piece, the depth of cut, t, is calculated by_____.

(a) t=D/d
(b) t = (D - d) / 2
(c) t=D-d
(d) t = (D + d) / 2

Q137. Who is authorised to conduct road tests on workshop vehicles?

(a) The company accountant
(b) Visitors to the workshop
(c) Any employee
(d) Only trained and certified personnel

Q138. Which of the following statements about title block is/are true?

Statement 1: The title block is situated in the bottom right-hand corner of the drawing sheet.

Statement 2: The contents of the title block are standardised and cannot be modified to suit individual company needs.

(a) Statement 1 is false, but statement 2 is true
(b) Statement 1 is true, but statement 2 is false
(c) Both statements are true
(d) Both statements are false

Q139. What is the Sl unit of 'volume'?

(a) Cubic centimetre
(b) Cubic metre
(c) Litres
(d) Millilitres

Q140. Tapering of a small part of a job at its edge or corner is known as_____.

(a) step turning
(b) facing
(c) chamfering
(d) knurling

Q141. What does the grit size number represent in relation to the grain size?

(a) A smaller grit size number means finer grit.
(b) The grit size number indicates the grain's diameter.
(c) A larger grit size number means coarser grit.
(d) A larger grit size number means finer grit.

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Q142. A voltmeter with a resistance of 10,000 ohms is connected across a circuit that has a 1 voltage of 50 V. What is the current flowing through the voltmeter?

(a) 4 mA
(b) 5 mA
(c) 2 mA
(d) 1 mA

Q143. Convert 8.5% into a decimal.

(a) .85
(b) 0.085
(c) 8.5
(d) 0.85

Q144. Which of the following is a major effect of a collision in a CNC machining centre?

(a) Increased machine downtime and repair costs
(b) Automatic correction of machining errors
(c) Enhanced efficiency in CNC operations
(d) Improved tool performance and longevity

Q145. _____is a type of turning where a workpiece is turned into a sequence of steps with varying diameters.

(a) Knurling
(b) Step turning
(c) Facing
(d) Chamfering

Q146. The SI unit of temperature is/are_____.

(a) celsius
(b) both kelvin and celsius
(c) fahrenheit
(d) kelvin

Q147. _____must be ascribed for the sake of convenience and is the size of a part in relation to which all limits of variation are determined.

(a) Nominal size
(b) Actual size
(c) Basic size alone
(d) Basic size or zero size

Q148. Which of the following is NOT a part of the micrometer?

(a) Frame
(b) Anvil
(c) Jam
(d) Spindle

Q149. If the length of a resistor is doubled, what happens to its resistance, assuming all other 8 factors remain constant?

(a) The resistance is doubled.
(b) The resistance is halved.
(c) The resistance remains the same.
(d) The resistance quadruples.

Q150. Which of the following correctly describes the use of a screw pitch gauge?

(a) It determines the pitch of a thread on screws or bolts.
(b) It measures the external diameter of cylindrical objects.
(c) It verifies the length of threads on fasteners.
(d) It measures the depth of internal threads in nuts.

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Q151. The driving mechanism of the slotting machine converts the rotary motion of the bull gear into the _____motion of the ram.

(a) circular
(b) reciprocating
(c) twisting
(d) oscillating

Q152. For your safety at work, which of the following should be ensured?

1. All the required protective clothing and equipment are used.
2. Training and instruction necessary for performing tasks safely have been received.

(a) Neither statement 1 nor 2
(b) Only statement 1
(c) Only statement 2
(d) Both statements 1 and 2

Q153. Which of the following statements about slip gauges is true?

(a) Slip gauges do not require calibration.
(b) Slip gauges are used only for rough measurements.
(c) Slip gauges are used for setting measuring instruments.
(d) Slip gauges are flexible and can bend easily.

Q154. A file that is flat on one side and curved on the other side is known as a _____file.

(a) half-round
(b) rectangular
(c) triangular
(d) square

Q155. On what basis is a joint said to be double-riveted lap joint or triple riveted lap joint?

(a) Based on strength of joint
(b) Based on type of joint
(c) Based on number of columns of rivets in joint
(d) Based on number of rows of rivets in joint

Q156. As we know from the graduation of micrometer, if we give one full round to thimble, its spindle moves 1½ mm forward or backward. A buck part can be divided into 0 to 50 parts. The least count of the micrometer is mm.

(a) 0.50
(b) 0.05
(c) 0.01
(d) 0.10

Q157. Which of the following types of chisels is used for separating metals after chain drilling?

(a) Web chisel
(b) Cross-cut chisel
(c) Diamond point chisel
(d) Flat chisel

Q158. Which of the following is a characteristic of incremental programming?

(a) It always measures dimensions from a fixed reference point.
(b) It requires all dimensions to be positive values.
(c) It does not allow the use of direction signs for motion.
(d) It defines each position relative to the last specified point.

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Q159. In a logic circuit, two inputs A and B are applied to an AND gate, and the output of the AND gate is connected to the input of a NOT gate. If the inputs A and B are both at logic 0, what will be the output of the entire circuit?

(a) Undefined
(b) 0
(c) 2
(d) 1

Q160. When creating 10 mm single-stroke capital letters in vertical style, what does the 10 mm distance between horizontal parallel lines represent?

(a) Letter height
(b) Interline spacing
(c) Stroke thickness
(d) Letter width

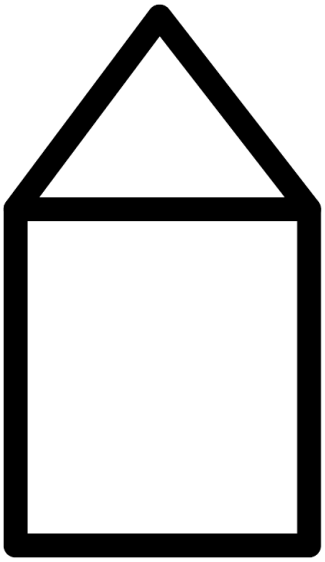
Q161. The wave set of hacksaw teeth set has a pitch of_____.

(a) 1.0 mm.
(b) 0.8 mm
(c) 2.0 mm
(d) 0.5 mm

Q162. A 100-mm prick punch with a 7-mm diameter body could have a 2.5-mm diameter point ground to an angle of_____.

(a) 120°
(b) 90°
(c) 30°
(d) 45°

Q163. Identify the below tool used on the Lathe.



(a) Boring tool
(b) Threading tool
(c) Parting tool
(d) Knurling tool

Q164. Which of the following statements about slotting tools is correct?

(a) Slotting tools remove metal during the horizontal stroke of cutting.
(b) Slotting tools are weaker than the material being cut to ensure easy machining.
(c) Slotting tools have angles determined with respect to the horizontal plane.

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(d) Slotting tools have a front rake and clearance angles but no side rake angle.

Q165. Which of the following correctly differentiates a cutting blowpipe/torch from a welding blowpipe/torch?

(a) A cutting blowpipe has 3 control valves, while a welding blowpipe has 1.
(b) A cutting blowpipe has 1 control valve, while a welding blowpipe has 2 control valves.
(c) A cutting blowpipe has 2 control valves and 1 lever, while a welding blowpipe has 2 control valves.
(d) A cutting blowpipe has 2 levers, while a welding blowpipe has 1 lever.

Q166. Which of the following 'V' blocks will have one 'V' groove and two grooves (slots) on 5 either side for clamping in two positions?

(a) Matched pair 'V' block
(b) Single level double groove 'V' block
(c) Single level single groove 'V' block
(d) Double level single groove 'V' block

Q167. Which of the following terms in the 5S concept refers to making a habit of maintaining 6 the established procedures?

(a) Sustain
(b) Set
(c) Shine
(d) Sort

Q168. Which type of shank is commonly used on hand reamers?

(a) Straight shank with a square end
(b) Morse taper shank
(c) Straight shank with a round end
(d) Threaded shank

Q169. Select the correct representation as Tolerance size for a hole from the given options.

(a) 50 H8/g7
(b) 50g7
(c) 50H8
(d) 50H8-c7

Q170. In taper turning by the tailstock offset method, a job has a large diameter (D) of 60 mm, a small diameter (d) of 40 mm, a taper length (l) of 200 mm and a total job length (L) of 800 mm. What will be the required tailstock offset?

(a) 5 mm
(b) 20 mm
(c) 10 mm
(d) 40 mm

Q171. In a Full Lap joint, diagonal pitch is given by_____, where p_d -diagonal pitch, p- pitch, d-diameter of rivets

(a) p_d = (2p x d)/3
(b) pd = (2p - d)/3
(c) pd = (2p + d)/3
(d) pd = (2p + 6d)/4

Q172. When used for fits between shaft and hole, _____is specified or both shaft and hole.

(a) the hole size is more than the shaft size
(b) the same basic size
(c) the shaft size is more than the hole size
(d) different size

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Q173. Which of the following statements is INCORRECT about end standard?

(a) It is used to measure the distance between two engraved lines.
(b) Faces are subject to wear.
(c) It measures the distance between two parallel flat surfaces.
(d) It is slower but more accurate.

Q174. Which of the following information is necessary to construct a rectangle?

(a) Length of one side and the area of the rectangle
(b) Length of two adjacent sides
(c) Only the length of the diagonal
(d) Only the length of one side

Q175. What is the minimum age for employment in factories or mines or other hazardous 4 employment, according to Article 24 of the Indian Constitution?

(a) 14 years
(b) 18 years
(c) 16 years
(d) 12 years

ANSWER KEY

1	a	2	a	3	a	4	a	5	a	6	a	7	a	8	a	9	a	10	a
11	a	12	a	13	a	14	a	15	a	16	a	17	a	18	a	19	a	20	a
21	a	22	a	23	a	24	a	25	a	26	a	27	a	28	a	29	a	30	a
31	a	32	a	33	a	34	a	35	a	36	a	37	a	38	a	39	a	40	a
41	a	42	a	43	a	44	a	45	a	46	a	47	a	48	a	49	a	50	a
51	a	52	a	53	a	54	a	55	a	56	a	57	a	58	a	59	a	60	a
61	a	62	a	63	a	64	a	65	a	66	a	67	a	68	a	69	a	70	a
71	a	72	a	73	a	74	a	75	a	76	a	77	a	78	a	79	a	80	a
81	a	82	a	83	a	84	a	85	a	86	a	87	a	88	a	89	a	90	a
91	a	92	a	93	a	94	a	95	a	96	a	97	a	98	a	99	a	100	a
101	a	102	a	103	a	104	a	105	a	106	a	107	a	108	a	109	a	110	a
111	a	112	a	113	a	114	a	115	a	116	a	117	a	118	a	119	a	120	a
121	a	122	a	123	a	124	a	125	a	126	a	127	a	128	a	129	a	130	a
131	a	132	a	133	a	134	a	135	a	136	a	137	a	138	a	139	a	140	a
141	a	142	a	143	a	144	a	145	a	146	a	147	a	148	a	149	a	150	a
151	a	152	a	153	a	154	a	155	a	156	a	157	a	158	a	159	a	160	a
161	a	162	a	163	a	164	a	165	a	166	a	167	a	168	a	169	a	170	a
171	a	172	a	173	a	174	a	175	a										

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