RRB ALP CBT 2 Previous Year Question Papers 2025 Shift 2

Q.1 The sum of the ages of a grandfather, his son, and his grandson is 128 years. The grandfather is twice as old as his son, and the son is five times as old as the grandson. Determine the age in years of the grandson.

1. 8
2. 6
3. 9
4. 7

Correct answer: 4. 7

Q.2 Neha swims in a pool that is 50 metres long. She covers 100 metres in 1 minute by swimming from one end of the pool to the other and back along the same straight path. Find her average velocity in m/s.

1. 0 m/s
2. 3.2 m/s
3. 2.5 m/s
4. 1.7 m/s

Correct answer: 1. 0 m/s

Q.3 The resistance of a particular material wire with length L and cross-sectional area A is 2 Ω. What would be the resistance of another wire of the same material having length 2L and area of cross-section A/2?

1. 8 Ω
2. 4 Ω
3. 2 Ω
4. 1 Ω

Correct answer: 1. 8 Ω

Q.4 A car starts from New Delhi and travels to Agra. The distance between the two cities is 300 km. The car travels back to New Delhi. What is the total distance travelled and the displacement of the car? Assume the car reaches the same point and the route followed is exactly same for both travels.

1. Distance travelled is 0 km and displacement is 600 km
2. Distance travelled is 300 km and displacement is 0 km
3. Distance travelled is 0 km and displacement is 0 km
4. Distance travelled is 600 km and displacement is 0 km

Correct answer: 4. Distance travelled is 600 km and displacement is 0 km

Q.5 A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor, which is numbered 6. F lives on an even-numbered floor but not on floor 6. The sum of the floors on which D and F live is 9. The sum of the floors on which F and B live is 5. E lives immediately below C. How many people live between D and E?

1. 2
2. 1
3. 4
4. 3

Correct answer: 4. 3

Q.6 Identify the correct pair of Personal Protective Equipment PPE categories based on the nature of the hazard.

1. Non-respiratory Safety helmet, Respiratory Nose mask
2. Non-respiratory Safety goggles, Respiratory Safety gloves
3. Non-respiratory Ear plugs, Respiratory Safety shoes
4. Non-respiratory Nose mask, Respiratory Safety boots

Correct answer: 1. Non-respiratory Safety helmet, Respiratory Nose mask

Q.7 A, B, C, D, E, F and G are sitting around a circular table facing the centre. Only two people sit between G and C when counted from the left of C. F sits third to the left of E. B sits to the immediate right of E. B sits second to the left of G. D is an immediate neighbour of F. How many people sit between A and C when counted from the right of C?

1. 1
2. 4
3. 2
4. 3

Correct answer: 3. 2

Q.8 There is a rectangular sheet whose dimensions are 15.2 cm ± 0.1 cm in length and 9.1 cm ± 0.1 cm in width. What is the error in the estimation of the area of the rectangular sheet?

1. 0.3 cm^2
2. 2 cm^2
3. 13 cm^2
4. 5 cm^2

Correct answer: 2. 2 cm^2

Q.9 In a project involving the design of a pipeline for a building, which technical drawings would need to be referenced together?

1. Electrical and Electronics
2. Mechanical and Electrical
3. Mechanical and Civil
4. Civil and Electronics

Correct answer: 3. Mechanical and Civil

Q.10 If 46.4 : x :: x : 2.9, and x > 0, then find the value of x.

1. 14.3
2. 15.6
3. 11.6
4. 13.4

Correct answer: 3. 11.6

Q.11 Generally, what is the process of heat transfer in liquids?

1. Convection
2. Both conduction and radiation
3. Radiation only
4. Conduction only

Correct answer: 1. Convection

Q.12 Calculate the kinetic energy of a body of mass 10 kg moving with a uniform velocity of 5 m/s.

1. 50 J
2. 125 J
3. 25 J
4. 120 J

Correct answer: 2. 125 J

Q.13 A train goes from A to B at a speed of 40 km/hr and returns from B to A by the same route at 10 km/hr. The average speed in km/hr of the train during the two-way journey is

1. 15
2. 19
3. 16
4. 14

Correct answer: 3. 16

Q.14 Which of the following statements is/are true regarding electrical safety practices?

1. It is safe to plug multi-outlet bars into other multi-outlet bars as long as the total load does not exceed the rated capacity of the outlets.
2. Electrical equipment should not be used near wet surfaces or when your hands are wet, and power cords should be protected by avoiding placement under rugs or mats.
3. Only Statement 1 is true.
4. Both Statements 1 and 2 are true.
5. Only Statement 2 is true.
6. Neither Statement 1 nor 2 is true.
   Correct answer: 3. Only Statement 2 is true.

Q.15 The measures of two supplementary angles are in the ratio 3 : 7. Find the measure of the greater of the two angles.

1. 126
2. 144
3. 180
4. 54
   Correct answer: 1. 126

Q.16 Which of the following materials serves as a heat insulator?

1. Copper
2. Aluminium
3. Plastic
4. Silver
   Correct answer: 3. Plastic

Q.17 By how much is 60 of 45 greater than of 25?

1. 4
2. 5
3. 1
4. 7
   Correct answer: 4. 7

Q.18 In a certain code language, while you wait is coded as ns bg sp and why wait now is coded as kc rw bg. How is wait coded in the given language?

1. bg
2. kc
3. ns

4. sp
   Correct answer: 1. bg

Q.19

In ΔPQR, $\angle Q = 90^\circ$. If $\tan R = \frac{1}{2}$, then what is the value of $\frac{\sec P(3\cos R - \sin P)}{4\operatorname{cosec} R\,(4\sin R - \cos P)}$?

1.
2.
3.
4.

Correct answer: Not readable from the extracted PDF text.

Q.20 Reeta invests a certain sum of money at a certain rate of simple interest per annum, and the interest she gets is equal to one-fourth of the sum invested. If the time period in years of investment is equal to the percentage rate of interest per annum, for how many years did Reeta invest the sum of money?

1. 4
2. 7
3. 5
4. 6
   Correct answer: 3. 5

Q.21 What is the normal range of temperature for a healthy human body in Kelvin?

1. 301.15-323.15 K
2. 308.15-315.15 K
3. 293.15-323.15 K
4. 283.15-323.15 K
   Correct answer: 1. 301.15-323.15 K

Q.22 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 consonantsvowels or their position in the letter-cluster.

1. MS KB
2. WC UL
3. TZ RI

4. DJ BT
   Correct answer: 2. WC UL

Q.23 In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Which numbers should replace X and Y so that the pattern followed by the two numbers on the left side of is same as that on the right side of ?
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 addingsubtractingmultiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.
X 179 22 Y

1. X 18, Y 219
2. X 16, Y 219
3. X 15, Y 223
4. X 16, Y 222
   Correct answer: 2. X 16, Y 219

Q.24 Given below are two statements numbered I and II. These statements may be independent causes or effects of independent causes or a common cause. One of the statements may be the effect of the other statement. Read both the statements carefully and select the correct answer.
Statements
Traffic police has issued a traffic advisory regarding the diversion of traffic for the next two days due to closure of Raj Bhavan Road.
The Municipal Corporation is planning to repair the pot holes in Raj Bhavan Road tomorrow.

1. Both I and II are independent causes.
2. II is the cause and I is its possible effect.
3. Both I and II are effects of independent causes.
4. I is the cause and II is its possible effect.
   Correct answer: 2. II is the cause and I is its possible effect.

Q.25 What is the recommended action before replacing a fuse?

1. Switch off circuit.
2. Stand on a stool.
3. Use rubber gloves.
4. Wear a safety belt.
   Correct answer: 1. Switch off circuit.

Questions 26–50

Q.26 Kaushik starts from Point A and walks 32 m towards the east. He takes a right turn, walks 16 m and then takes a right turn, walks 14 m, reaches Point B and stops. Chitra starts from Point Z which is 60 m towards the east of Point A. She walks 18 m towards north, takes a right turn, walks 19 m, turns right and walks 65 m, turns right and walks 61 m and stops at Point Y. What is the shortest distance between Point B and Point Y? All turns are 90 degree turns only.

1. 29 m
2. 33 m
3. 25 m
4. 31 m

Correct answer: 1. 29 m

Q.27 A, B, C and D are four partners in a business. As investment is two-thirds of Ds investment. B and C invest equal amounts, and Cs investment is half of Ds investment. If they earn 137.6 lakh at the end of one year, then find the total share in lakh of A and B put together.

1. 60.2
2. 62.2
3. 59.2
4. 63.2

Correct answer: 2. 62.2

Q.28 A bulb is connected across a battery of 10 V for 20 seconds. If a current of 2 A flows through it, calculate the heat energy generated by the bulb.

1. 120 J
2. 100 J
3. 400 J
4. 200 J

Correct answer: 3. 400 J

Q.29 In a certain code language, GIFT is coded as 8264 and FEAR is coded as 3527. What is the code for F in the given code language?

1. 2
2. 3
3. 6

4. 5
   Correct answer: 2. 3

Q.30 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 ? EAG IEK

1. FBH, HDJ
2. FBG, HDJ
3. FBH, HDI
4. FBH, HEJ
   Correct answer: 1. FBH, HDJ

Q.31 Refer to the following letter and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) ^ T J # L R Ω Y # E % S U $ K Q & * £ B (Right)

How many such symbols are there each of which is immediately preceded by a letter and also immediately followed by another symbol?

1. Four
2. One
3. Two
4. Three
   Correct answer: 3. Two

Q.32 Which ICT Information and Communication Technology service is commonly used for activities like railway reservation in e-Governance?

1. Web portals
2. Online payment gateways
3. Email services
4. Social media platforms
   Correct answer: 1. Web portals

Q.33 A man purchased two varieties of apples at the rate of 4 for 5 apples and 4 per apple, respectively. If he purchased an equal number of apples of each variety and then sold all the apples at 3 per apple, what will be his profit percentage?

1. 0.23
2. 0.25
3. 0.2
4. 0.24
   Correct answer: 4. 0.24

Q.34 A fruit seller had some apples. He sold 40 of the apples and now has 840 apples. How many apples did he originally have?

1. 1800
2. 1260
3. 2100
4. 1400

Correct answer: 4. 1400

Q.35 Find the least number which when divided by 5, 6 and 7 leaves remainders 4, 5 and 6.

1. 210
2. 209
3. 207
4. 208

Correct answer: 2. 209

Q.36 Which of the following factors affects the resistance of a wire?

1. Only material of the wire
2. Only length of the wire
3. The length, cross-sectional area and material of the wire
4. Only length and cross-sectional area of the wire

Correct answer: 3. The length, cross-sectional area and material of the wire

Q.37 If the arithmetic mean of A and B is 70 and the arithmetic mean of B and C is 110, what is the value of C A?

1. 70
2. 90
3. 60
4. 80

Correct answer: 4. 80

Q.38 How does the thermal pollution of water affect the water quality?

1. Sediments get settled soon
2. Alters the colour of water
3. Increases pH of water
4. Oxygen level in water gets reduced

Correct answer: 4. Oxygen level in water gets reduced

Q.39 If a force of 6 N is applied on a body, which is displaced through 2 m in the direction of the force, the work done is found to be .

1. 4 J
2. 10 J
3. 12 J
4. 3 J

   Correct answer: 3. 12 J

Q.40 A rheostat in the electrical circuit is used to .

1. measure the current and voltage both
2. measure the voltage only
3. change the resistance in the circuit
4. measure the current only

   Correct answer: 3. change the resistance in the circuit

Q.41 Which of the following is an example of preventive maintenance?

1. Waiting for a machine to break down before repairing it
2. Ignoring minor faults to save costs
3. Conducting regular lubrication and inspections
4. Using equipment until failure occurs

   Correct answer: 3. Conducting regular lubrication and inspections

Q.42 The body of the cooking vessel is of metal and handles are of plastic because .

1. metal is an insulator and plastic is a good conductor of heat
2. metal is a good conductor of heat and plastic is an insulator
3. both metal and plastic are insulators
4. both metal and plastic are good conductors of heat

   Correct answer: 2. metal is a good conductor of heat and plastic is an insulator

Q.43 Refer to the following letter and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) ^ T J # L R Ω Y # % S U $ E K Q & * £ B (Right)

How many such symbols are there, each of which is immediately preceded by a symbol and also immediately followed by a letter?

1. One
2. Four
3. Two
4. Three

   Correct answer: 1. One

Q.44 For a given potential difference V, current I and resistance R across a conductor, Ohms law is represented as

1. V IR
2. V I R
3. I VR
4. V I R
   Correct answer: 1. V IR

Q.45 Which of the following statements is correct?

1. The normal human body temperature is 45C.
2. There is no method to convert temperature from one temperature scale to another.
3. The normal human body temperature is 98.6F.
4. Laboratory thermometer is used to measure human body temperature.
   Correct answer: 3. The normal human body temperature is 98.6F.

Q.46 Which of the following statements are true regarding general safety in the workshop?
Statement 1 Use any available tool for the job, even if it is not the correct one.
Statement 2 Keep the tools in their proper place after use.
Statement 3 Clean the machine while it is still running.
Statement 4 Replace worn-out or damaged tools immediately.

1. Statements 2 and 4 are true.
2. Statements 1 and 3 are true.
3. Statements 3 and 4 are true.
4. Statements 1 and 2 are true.
   Correct answer: 1. Statements 2 and 4 are true.

Q.47 Two sets of numbers are given below. In each set of numbers, certain mathematical operations on the first number results in the second number. Similarly, certain mathematical operations 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 addingsubtractingmultiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.
68 136 121 363 29 58 43 129

1. 13 26 46 138
2. 35 70 55 165
3. 73 146 114 228
4. 42 84 74 222
   Correct answer: 2. 35 70 55 165

Q.48 What should come in place of the question mark ? in the given series? 67 106 88 127 109 148 ?

1. 108
2. 117
3. 126
4. 130
   Correct answer: 4. 130

Q.49 Which of the following processes is primarily responsible for heat loss from a hot utensil?

1. Convection
2. Conduction
3. Absorption
4. Radiation
   Correct answer: 4. Radiation

Q.50 Which of the following is NOT a heat insulator?

1. Silver
2. Plastic
3. Wool
4. Rubber
   Correct answer: 1. Silver

Questions 51–75

Q.51 A person saves 10 of his monthly income. If his monthly income increases by 30, then he saves 20 more than the previous savings. The percentage increase in his expenditure, correct to two places after decimal, is .

1. 40.44
2. 37.33
3. 24.89
4. 31.11
   Correct answer: 2. 37.33

Q.52 An auto A covers a distance in 2 hours at the speed of 42 kmhr. Another auto B covers twice the distance covered by A in 5 hours. What is the speed of auto B in kmhr?

1. 36.3
2. 31.2
3. 34.2
4. 33.6

Correct answer: 4. 33.6

Q.53 If a ball is thrown upwards, the work done by the gravitational force on the ball is.

1. negative
2. positive
3. independent of the displacement of the ball
4. zero

Correct answer: 1. negative

Q.54 The dimension of surface tension is .

1. MLoT2
2. MLoT-2
3. ML2T-2
4. MLT-2

Correct answer: 2. MLoT-2

Q.55 The list price of an article is 5,100 and a discount of 32 is offered on the list price. What additional discount per cent on the already discounted price must be offered to a customer to bring the net selling price to 1,734?

1. 50
2. 49
3. 46
4. 55

Correct answer: 1. 50

Q.56 Which of the following letter-number clusters will replace the question mark ? in the given series? 6S, 24T, 12V, 48Y, 24C, ?

1. 96I
2. 60H
3. 96H

4. 96G
   Correct answer: 3. 96H

Q.57 What is the first step in providing first aid for a minor burn?

1. Pop any blisters that form
2. Cover the burn with a thick cloth
3. Run cool water over the burn
4. Apply butter to the burn
   Correct answer: 3. Run cool water over the burn

Q.58 Which of the following terms describes the process of the gradual increase in the average temperature of the Earths atmosphere, due to the greenhouse effect caused by increased levels of carbon dioxide, CFCs and other pollutants?

1. Global warming
2. Ozone depletion
3. Acid rain
4. Deforestation
   Correct answer: 1. Global warming

Q.59 Each of I, J, K, L, U, V and W has an exam on a different day of a week, starting from Monday and ending on Sunday of the same week. Only two people have the exam before V. Only one person has the exam after L. Only three people have the exam between V and I. Only one person has the exam between J and K. W has the exam immediately before J. Who among the following has the exam on Friday?

1. V
2. U
3. W
4. I
   Correct answer: 1. V

Q.60 Which of the following units are used to measure only fundamental physical quantities?

1. Derived units
2. Neither base nor derived units
3. Base units
4. Both base and derived units
   Correct answer: 3. Base units

Q.61 What is the typical range of wind speed in ms required for the efficient operation of most commercial wind turbines?

1. 5 - 15 ms
2. 12 - 25 ms
3. 3 - 5 ms
4. 0 - 2 ms

Correct answer: 1. 5 - 15 ms

Q.62 The resistivity of a conductor depends on the .

1. length of conductor
2. cross-sectional area
3. material
4. potential difference across conductor

Correct answer: 3. material

Q.63 In a rare coin collection, there was one gold coin for every five non-gold coins. Then, 18 more gold coins were added to the collection, after which the ratio of gold coins to non-gold coins became 5 7. How many coins in all are now there in the collection?

1. 60
2. 75
3. 55
4. 45

Correct answer: 2. 75

Q.64 Select the option that is true regarding the following two statements labelled Assertion A and Reason R.
Assertion A It is safe to work under a suspended load if you are in a hurry.
Reason R Never exceed the safe working load SWL of the equipment you are using.

1. Assertion A is false, but Reason R is true.
2. Both A and R are true, but R is not the correct explanation of A.
3. Assertion A is true, but Reason R is false.
4. Both A and R are true, and R is the correct explanation of A.

Correct answer: 1. Assertion A is false, but Reason R is true.

Q.65 The value of $32 - 4 [4 + 5 (4 - 4 (6 - 2) + 4) - 18] \div 6$ is:

1. 68
2. 60

3. 56
   Correct answer: 3. 60

Q.66 Which of the following features is NOT available in Google Docs?

1. Track changes
2. Create tables
3. Comment on text
4. Insert images
   Correct answer: 1. Track changes

Q.67 The resistance of a uniform metallic conductor depends on its

1. area of cross-section only
2. length only
3. melting point only
4. length, area of cross-section, and nature of its material
   Correct answer: 4. length, area of cross-section, and nature of its material

Q.68

1. 412 m2
2. 416 m2
3. 414 m2
4. 418 m2
   Correct answer: 3. 414 m2

Q.69 Determine the energy of an object with a mass of 5 kg at a height of 8 metres above the ground. Assume the value of g' as 9.8 m s–2 .

1. 392 J
2. 400 J
3. 784 J
4. 300 J
   Correct answer: 1. 392 J

Q.70 Find the four-digit dividend of 21, 42, 147 and 105 that will give the remainder 14, 35, 140 and 98, respectively.

1. 8019
2. 8034
3. 8813
4. 8816
   Correct answer: 2. 8034

Q.71 Samir takes 6 days to complete a piece of work, while Tanvir can complete it in 8 days. If Amir also joins them, together, the trio can complete the entire work in 3 days. If a total sum of 2,400 is to be paid for the job, how much will Amir receive for his contribution?

1. 430
2. 300
3. 340
4. 250

Correct answer: 3. 340

Q.72 In the following triad, each group of letters is related to the subsequent one following a certain logic. Select from the given options, the one which follows the same logic. GRANDGRNADDNARG

1. NIGHTNGHITTHGIN
2. INDEXDEXINXDEIN
3. MINORMOINRRNOIM
4. FRUITFRIUTTIURF

Correct answer: 1. NIGHTNGHITTHGIN

Q.73 What is the most effective way to avoid mechanical hazards when operating large and dangerous machines?

1. Employee physical fitness training only
2. Proper training and experience
3. Regular machine maintenance only
4. Machine redesign to eliminate hazards

Correct answer: 2. Proper training and experience

Q.74 A, B, C, D, E, F and G are sitting around a circular table facing the centre. G is sitting second to the left of E. B is sitting third to the right of A. C is the immediate neighbour of both E and B. D is sitting to the immediate left of G. How many people are sitting between E and F when counted from the right of E?

1. Three
2. Four
3. Two
4. One

Correct answer: 4. One

Q.75 Which of the following is commonly used to treat drinking water?

1. Oil filtration

2. Incineration
3. Acid neutralisation
4. Chlorination
   Correct answer: 4. Chlorination

Q.76 Study the table given below and answer the following question.

	Monday	**Tuesday**	**Wednesday**
Shop X	58	19	25
Shop Y	42	34	30

If one mango was sold for ₹80 by shop Y on Tuesday, what was the amount received by shop Y on Tuesday?

1. ₹2,780
2. ₹2,720 ✅
3. ₹2,620
4. ₹2,560

Q.77 An 8 Ω resistor generates 200 J of heat every second. What is the potential difference across the resistor?

1. 30 V
2. 40 V ✅
3. 10 V
4. 20 V

Q.78 Which of the following options represents the equation for work done?

1. Work done = force / displacement
2. Work done = force + displacement
3. Work done = force × displacement ✅
4. Work done = force - displacement

Q.79 How many folds is/are required to fold an A2 size drawing sheet (420 mm × 594 mm), according to BIS SP: 46-2003?

1. 4 folds
2. 2 folds
3. 3 folds ✅

4. 1 fold

Q.80 Simplify the following expression.

$(x - y - z)^2 - (x + y + z)^2$

1. -4 (xy + yz + zx)
2. -4x (y + z)
3. -4y (x + z)
4. -4z (x + y) ✅

Q.81 Which of the following fundamental quantities are used to express any mechanical quantity?

1. Mass, time and force
2. Length, mass and speed
3. Length, time and energy
4. Length, mass and time ✅

Q.82 What will come in place of the question mark (?) in the following equation, if '+' and '-' are interchanged and 'x' and '÷' are interchanged?

9 ÷ 5 + 70 × 7 - 11 = ?

1. 46 ✅
2. 44
3. 47
4. 45

Q.83 Which chemical process involves replacing the R group of an alcohol with the R' group of an ester to produce biodiesel from vegetable oils?

1. Distillation
2. Fermentation
3. Transesterification ✅
4. Polymerisation

Q.84 SI unit of luminous intensity is __.

1. mole
2. metre
3. watt
4. candela ✅

Q.85 What should come in place of the question mark (?) in the given series?

197 112 189 129 181 146 173 163 ?

1. 153
2. 156
3. 144
4. 165 ✅

Q.86 A class of 30 students appeared in a test. The average score of 12 students is 68, and that of the rest is 70. What is the average score of the class?

1. 67.2
2. 68.2
3. 70.2
4. 69.2 ✅

Q.87 Mechanical energy is the sum of _____.

1. electrical energy and light energy
2. chemical energy and electrical energy
3. potential energy and kinetic energy ✅
4. heat energy and chemical energy

Q.88 In the following series, only one letter-cluster is incorrect. Select the INCORRECT letter-cluster.

INK KP J MRI OTH QWG SXF

1. OTH
2. QWG ✅
3. MRI
4. SXF

Q.89 A product, whose MRP is ₹1,590, is sold for ₹835 by a wholesale shop owner. What is the percentage of discount given by him (nearest to its integer)?

1. 46%
2. 49%
3. 45%
4. 47% ✅

Q.90 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:
Some cats are rats.
All bats are tables.
All rats are bats.
Conclusions:
(I): Some cats are bats.

(II): All bats are rats.

1. Both conclusions (I) and (II) follow.
2. Only conclusion (I) follows. ✅
3. Only conclusion (II) follows.
4. Neither conclusion (I) nor (II) follows.

Q.91 In a certain code language, 'A × B' means 'A is the son of B', 'A - B' means 'A is the brother of B', 'A + B' means 'A is the wife of B' and 'A % B' means 'A is the father of B'. How is M related to T if 'M × N - P % S + T'?

1. Wife's father's brother
2. Wife's father's brother's son ✅
3. Wife's mother's brother
4. Wife's mother's brother's son

Q.92 Which of the following statements is correct?

1. On increasing the thickness of the conductor, resistance is increased.
2. On increasing the length of the conductor, resistance remains unchanged.
3. On increasing the length of the conductor, resistance is increased. ✅
4. On increasing the length of the conductor, resistance is decreased.

Q.93 5 men or 9 women can do a job in 9 days. 5 men work for 7 days and leave. The number of women required to complete the remaining work in 9 days is:

1. 1
2. 4
3. 5
4. 2 ✅

Q.94 In this question, two statements I and II have been given. These statements may be independent causes or effects of independent causes or a common cause. One of the statements may be the effect of the other statement. Read both the statements carefully and select the correct answer.

I. The local river's water levels have reached an all-time low this summer, disrupting water supply to the nearby towns.

II. Several power plants in the region have reported reduced electricity production due to insufficient water for cooling processes.

1. I is the cause and II is its possible effect. ✅
2. II is the cause and I is its possible effect.
3. Both I and II are effects of independent causes.
4. Both I and II are independent causes.

Q.95 What is an appropriate way to handle a misunderstanding in an online conversation?

1. Blocking the person immediately
2. Publicly shaming the other person
3. Ignoring the conversation
4. Addressing the misunderstanding politely and privately ✅

Q.96 How many fundamental units are there in the SI system?

1. 5
2. 7 ✅
3. 14
4. 10

Q.97 What is the primary purpose of information kiosks set up by the government?

1. To provide free food and beverages to citizens
2. To offer citizens easy access to information and services such as bill payments, registrations and public information ✅
3. To allow citizens to participate in online gaming competitions
4. To enable government employees to monitor social media activities of citizens

Q.98 The areas of three adjacent faces of a solid cuboid are 190 cm^2, 285 cm^2 and 150 cm^2. What is the volume (in cm^3) of the cuboid?

1. 2896
2. 3076
3. 2850 ✅
4. 2716

Q.99 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?

1. BEWZ
2. NQIL
3. RUNP ✅
4. WZRU

Q.100 Which of the following correctly identifies the main components of a standard email structure?

1. Subject Line, Recipient Address, Message Body and Signature ✅
2. Header, Body, Footer and Encryption Key
3. Recipient Address, CC, BCC and Attachment
4. Username, Password, Message Body and Signature

PART – B (Electrician Trade)

Questions 1–29 (Document shows up to Q.29; remaining pages not provided in the input)

Q.1 Which of the following statements is correct about a protractor?

Statements:

1. A protractor can be used to measure angles from both sides.
2. A protractor is typically made of a rigid metal material.
3. Only statement 2 is true
4. Only statement 1 is true ✅
5. Neither statement is true
6. Both statements are true

Q.2 What is the holding current in a DIAC?

1. The current that flows when the device is turned off
2. The current needed to trigger the device into conduction
3. The current required to break down the junction
4. The current required to keep the DIAC in conduction once it starts ✅

Q.3 The SCR (Silicon controlled rectifier) is also called a _____.

1. transistor
2. triac
3. diode

4. thyristor ✅

Q.4 What is the maximum allowable distance of the screw from the end point of a joint during installation of PVC channel?

1. 20 cm
2. 15 cm ✅
3. 10 cm
4. 5 cm

Q.5 Which of the following IEEE standards focuses on the grounding of electrical systems and equipment?

1. IEEE 1547
2. IEEE 519
3. IEEE 80 ✅
4. IEEE 1100

Q.6 What is the most likely cause if a DC motor runs in the wrong direction?

1. Faulty bearings
2. High armature resistance
3. Worn-out brushes
4. Incorrect field or armature wiring connections ✅

Q.7 Which type of wiring is used only for temporary installations?

1. Conduit wiring
2. CTS wiring
3. Casing and capping wiring
4. Cleat wiring ✅

Q.8 If 'P' is the number of poles on a rotor of an alternator, 'n' is the number of revolutions made per second by the rotor, then the frequency will be:

1. f = P/2n ✅
2. f = (P*n)/120
3. f = P*n
4. f = 120P*n

Q.9 Which of the following is the key difference between a fuse and a circuit breaker?

1. A fuse is a one-time-use device, while a circuit breaker can be reset and reused. ✅

2. A fuse is used for high-voltage circuits, while a circuit breaker is used for low-voltage circuits.
3. A fuse can be reset after tripping, while a circuit breaker must be replaced.
4. A fuse is a mechanical device, while a circuit breaker is an electronic device.

Q.10 If the load on a three-phase system is unbalanced, the power calculation becomes more complex because _____.

1. the line and phase voltages become equal
2. the line current becomes zero
3. the current in each phase differs, and the total power must be calculated by adding individual phase powers ✅
4. the power factor becomes unity

Q.11 In engineering drawing (lettering and numbering), a single stroke means that the _____.

1. thickness of the line of the letter or number is obtained in three strokes of the pencil
2. thickness of the line of the letter or number is obtained in one stroke of the pencil ✅
3. thickness of the line of the letter or number is obtained in two strokes of the pencil
4. thickness of the line of the letter or number is obtained in no strokes of the pencil

Q.12 Salient pole type alternator has a _____ diameter and a _____ axial length for low speed of operation.

1. large, large
2. large, short ✅
3. short, short
4. short, large

Q.13 What is the primary purpose of implementing Lockout/Tagout (LOTO) procedures when working on a DC motor?

1. To measure motor speed
2. To increase motor efficiency
3. To prevent accidental startup during maintenance ✅
4. To improve motor cooling

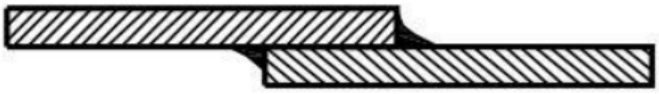
Q.14 What is another name for CTS wiring?

1. Casing and capping wiring
2. Cleat wiring
3. Conduit wiring
4. Batten wiring ✅

Q.15 Which of the following losses remains variable during normal operation of transformer?

1. Eddy current loss
2. Copper loss ✅
3. Stray loss
4. Hysteresis loss

Q.16 Identify the type of brazed joint shown below.



1. Joggle Lap
2. Strapped Lap
3. Butted Flange
4. Simple Lap ✅

Q.17 Which of the following statements correctly describes the placement and purpose of orientation marks on a drawing sheet?
1, 2, and 4 only
1, 2, and 3 only
1 and 4 only

2 and 3 only ✅ (Correct option as per key)

Q.18 In a single-phase transformer, which instrument is used to check continuity between the primary and secondary windings when they are not energised?

1. Use a multimeter set to ohms ✅
2. Use a multimeter set to current
3. Use a multimeter set to voltage
4. Use an energy meter

Q.19 Which of the following parts of a hammer-head is used for shaping and forming work like riveting and bending?

1. Face
2. Pein ✅
3. Cheek
4. Eyehole

Q.20 A resistor has these colour bands: Brown, Black, Red and Gold. What is its resistance value?

1. 100 Ω ± 5%
2. 10 Ω ± 5%
3. 1,000 Ω (1 kΩ) ± 5% ✅
4. 10,000 Ω (10 kΩ) ± 5%

Q.21 In parallel grouping of capacitors, what happens to the total capacitance?

1. It increases. ✅
2. It remains the same.
3. It becomes zero.
4. It decreases.

Q.22 What is the chemical effect that occurs in a battery during the charging process of a Lead Acid battery?

1. Lead sulphate decomposes into lead and sulphuric acid ✅
2. Water dissociation into hydrogen and oxygen
3. Sulphuric acid dissociates into hydrogen and sulphate ions
4. Lead reacts with sulphur to form lead sulphate

Q.23 A capacitor with a capacitance of 10 μF is connected in series with a 1 MΩ resistor. How much time will it take for the capacitor to reach 90% of its final charge?

1. 50.2 seconds
2. 10.5 seconds
3. 35.7 seconds
4. 23.03 seconds ✅

Q.24 A DC generator delivers a load current of 25 A at 200 V. If the generated EMF is 205 V, what is the armature resistance?

1. 0.4 Ω
2. 0.1 Ω
3. 0.2 Ω ✅
4. 0.3 Ω

Q.25 Why is it important to follow proper disposal procedures for industrial waste?

1. To save time and effort in sorting waste
2. To comply with environmental regulations and reduce pollution ✅
3. To reduce the number of trash bins needed
4. To allow waste to decompose anywhere

Q.26 Match the correct length and breadth of the Trimmed sizes of sheets.

1. A - S, B - R, C - P, D - Q
2. A - P, B - R, C - Q, D - S
3. A - R, B - S, C - Q, D - P
4. A - S, B - R, C - Q, D - P ✅

Q.27 What happens to inductive reactance, when frequency increases?

1. It increases. ✅
2. It remains the same.
3. It decreases.
4. It becomes zero.

Q.28 In a Power MOSFET, the gate-to-source voltage (Vgs) controls the ____.

1. source current
2. drain current ✅
3. gate current
4. breakdown voltage

Q.29 Which of the following processes is used to manufacture thick film resistors?

1. Embedding metal wire in ceramic
2. Spraying metal powder on a ceramic base
3. Coating a metal rod with ceramic
4. Pasting metal compound and powdered glass on a ceramic base ✅

Q.30 Which of the following is an example of a p-type semiconductor?

1. Germanium doped with phosphorus
2. Silicon doped with arsenic
3. Silicon doped with boron ✅
4. Silicon doped with phosphorus

Q.31 When drawing a curved line of a specific length in an engineering drawing, which tool is most appropriate for ensuring accuracy?

1. Protractor
2. Compass
3. Straightedge
4. French Curve ✅

Q.32 What is waste?

1. Unwanted or unusable materials ✅
2. Valuable substances for agriculture
3. Useful materials for industries
4. Natural resources for living organisms

Q.33 Which of the following is true for an alternator?

1. Alternator is a synchronous motor.
2. Alternator is a synchronous generator. ✅
3. Alternator is a DC machine.
4. Alternator is an AC induction generator.

Q.34 A shunt release in an MCCB is commonly used for:

1. remote tripping of the MCCB ✅
2. overcurrent protection
3. voltage stabilisation
4. improving power factor

Q.35 If 'P' is the number of poles on a rotor of an alternator, how many cycles of EMF are completed in one revolution?

1. 2P
2. P
3. P/2 ✅
4. P/4

Q.36 Which of the following instruments is used to measure the resistance of an earthing electrode?

1. Tachometer
2. Clamp meter
3. Earth resistance tester ✅
4. Power analyser

Q.37 What will be the eddy current loss if the supply frequency of a transformer becomes double?

1. Double
2. Four times ✅
3. No change
4. Half

Q.38 What is the significance of the term 'equipotential bonding' in the context of IEEE regulations for earthing?

1. It is a method to increase the resistance of the grounding system.
2. It refers to the insulation of electrical cables.
3. It refers to ensuring that all metallic parts of electrical systems are connected together to maintain the same electrical potential. ✅
4. It ensures that electrical systems operate at different voltage levels.

Q.39 Which of the following maintenance practices helps prevent overheating in a DC motor?

1. Regular lubrication of bearings ✅
2. Reducing field current
3. Disconnecting the load frequently
4. Increasing armature resistance

Q.40 A device operates at 240 V and consumes 480 W of power. What is the current flowing through the device?

1. 2 A ✅
2. 1.5 A
3. 2.5 A
4. 1 A

Q.41 What should be the minimum thickness of the MS clips used for fixing PVC channels under steel joints?

1. 2.2 mm
2. 1.7 mm
3. 0.5 mm
4. 1.2 mm ✅

Q.42 Which of the following methods is used to reduce earth resistance in an earthing system?

1. Reducing the distance between the earth and the neutral

2. Using insulated grounding cables
3. Using larger conductors for grounding ✅
4. Increasing the depth of the ground electrode

Q.43 Which of the following is a key advantage of using Thyristors in power control applications?

1. High efficiency and low power loss
2. Small size and low cost
3. High frequency switching ✅
4. Low voltage handling capabilities

Q.44 Which of the following punches is used to make deeper witness marks on scribed lines and make it easier for the drill to start correctly?

1. Solid punch
2. Centre punch ✅
3. Pin punch
4. Prick punch

Q.45 In a balanced three-phase system, the phase angles between the line-to-line voltages are _____.

1. 0°
2. 120° ✅
3. 60°
4. 90°

Q.46 The EMF per turn of a single phase 10 kVA, 2200/220 V, 50 Hz transformer is 10 V. Calculate the number of primary and secondary turns, respectively.

1. 22 and 220
2. 10 and 110
3. 110 and 10
4. 220 and 22 ✅

Q.47 Which type of material is used to protect the transformer winding from the core?

1. Steel
2. Iron
3. Water
4. Mica ✅

Q.48 A 6-pole alternator is running and producing a frequency of 50 Hz. If the frequency is decreased to 20 Hz, how many poles will be required, if the alternator is to be run at the same speed?

1. 4
2. 2 ✅
3. 6
4. 8

Q.49 Which power loss is assessed by open-circuit test on transformer?

1. Friction loss
2. Copper loss
3. Winding loss
4. Core loss ✅

Q.50 When did India implement the Hazardous Wastes (Management and Handling) Rules to regulate the disposal and handling of hazardous waste?

1. 1987
2. 2000
3. 1989 ✅
4. 1982

Q.51 If the coefficient of linear expansion of a material is 2×10−5 ◦C−1 2 \times 10^{-5} \,^{\circ}\text{C}^{-1} 2×10−5◦C−1, what does it mean?

1. The material expands by 2×10−5 2 \times 10^{-5} 2×10−5 times its original length per degree Celsius ✅
2. The material expands by 2×10−5 2 \times 10^{-5} 2×10−5 times its original area per degree Celsius
3. The material always increases by 2×10−5 2 \times 10^{-5} 2×10−5 kg when temperature is increased by 1 ◦C 1 \,^{\circ}\text{C} 1◦C
4. The material expands by 2×10−5 2 \times 10^{-5} 2×10−5 times its original volume per degree Celsius

Q.52 Select the correct statement regarding grounding and earthing in electrical system.

1. Grounding involves connecting the earth to a system's neutral or other conductors, while earthing connects the system's frame or body to the earth. ✅
2. Grounding and earthing are the same process with no distinction.
3. The grounding and earthing are related to single phase system.

4. Grounding is used to protect humans from electric shocks, while earthing is used to reduce power consumption.

Q.53 What does inductance (L) oppose in a circuit?

1. Change in current magnitude ✅
2. Change in resistance
3. Change in voltage
4. Change in frequency

Q.54 What is the main difference between grounding and earthing in a three-phase system?

1. Grounding connects only the body of the electrical equipment to the earth, whereas earthing is associated with the neutral conductor.
2. Grounding is used to protect electrical appliances from surge voltages, while earthing is used to prevent system overloads.
3. Grounding and earthing are used interchangeably, with no major difference.
4. Grounding provides a return path for current, while earthing provides a safe path for fault current. ✅

Q.55 Which type of DC generator has its field winding connected in parallel with the armature?

1. Separately excited DC generator
2. Compound DC generator
3. Series DC generator
4. Shunt DC generator ✅

Q.56 Which of the following types of wooden mallets are used for hollowing panel beatings?

1. Side-faked mallets
2. Standard wooden mallets
3. Bossing mallets ✅
4. End-faked mallets

Q.57 What force (effort) will be required to push a load, initially at rest, of mass 500 g, so that at a distance of 20 m, its final velocity is 20 m/sec [Assume that there is no friction and 'g' = 10 m/s^2].

1. 10 N
2. 10 J
3. 5 N ✅

4. 5 J

Q.58 In an unbalanced three-phase system, the neutral current will _____.

1. be equal to the ratio of phase voltage of any phase to the impedance of that phase
2. always be zero
3. be equal to the phasor sum of the unbalanced currents ✅
4. be equal to the ratio of phasor sum of phase voltage of any two phases to the total impedance of both phases

Q.59 The total power delivered by a balanced three-phase system is _____.

1. the product of the phase voltage and current of any one phase
2. the sum of the individual powers of any two phases
3. the average of the powers in all three phases
4. the sum of the individual powers in each phase ✅

Q.60 If a machine has an efficiency of 80%, it means:

1. the machine has a velocity ratio and mechanical advantage both equal to 80
2. the machine does not have any loss in input energy
3. the machine loses 20% of the input ✅
4. the machine produces more output than input

Q.61 What is the blade length of the T1 'T' square, as per IS:1360-1989?

1. 1500 mm
2. 700 mm
3. 1000 mm ✅
4. 500 mm

Q.62 In which application is a Gate Turn-Off Thyristor (GTO) used?

1. Low-power digital circuits
2. Audio amplifiers
3. Power inverters and motor drives ✅
4. High-speed communication systems

Q.63 In engineering drawing, what is defined as the path of a moving point with no thickness?

1. Point

2. Line ✅
3. Curve
4. Angle

Q.64 Which of the following punch marks is used for the correct location and seating of the divider point?

1. Prick punch marks of 30° ✅
2. Centre punch marks of 60°
3. Centre punch marks of 30°
4. Prick punch marks of 120°

Q.65 What is the primary principle behind the generation of electrical energy in a piezoelectric device?

1. Conversion of thermal energy into electrical energy
2. Conversion of light energy into electrical energy
3. Conversion of mechanical stress into electrical energy ✅
4. Conversion of chemical energy into electrical energy

Q.66 What does an optical pyrometer measure?

1. The temperature of the surface ✅
2. The relative density of liquids
3. The volume of liquids
4. The pressure of gases

Q.67 Which of the following uses of wire gauge is INCORRECT?

1. It does not help determine how much current a wire can carry. ✅
2. It measures the diameter of a wire.
3. It is used in electrical installations, welding and other applications.
4. Using the wrong wire gauge can damage appliances and electronic devices.

Q.68 Which of the following types of wooden mallets are used for general purpose work such as flattening and bending?

1. Standard wooden mallets ✅
2. Bossing mallets
3. Side-faked mallets
4. End-faked mallets

Q.69 Select the option that is correct regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion: The line voltage in a star-connected system is 3 \sqrt{3} 3 times the phase voltage.

Reasoning: In a star connection, the line voltage is the vector sum of the phase voltages, resulting in a 3 \sqrt{3} 3 factor between them.

1. Both Assertion and Reason are correct, but the Reason is not the correct explanation for the Assertion.
2. Assertion is correct, but Reason is incorrect.
3. Both Assertion and Reason are correct, and the Reason is the correct explanation for the Assertion. ✅
4. Assertion is incorrect, but Reason is correct.

Q.70 Which of the following is a fundamental unit?

1. metre ✅
2. watt
3. pascal
4. newton

Q.71 Pencils are rated in engineering drawings based on the _____.

1. hardness or softness of the lead ✅
2. durability of the lead
3. shape of the lead
4. colour of the lead

Q.72 What is the recommended action if a DC motor produces excessive sparking at the brushes?

1. Replace worn-out brushes and clean the commutator ✅
2. Add resistance to the armature circuit
3. Increase the supply voltage
4. Reduce the motor speed

Q.73 Which of the following statements is/are correct?
Statement I – The annealing process uses heat to reduce the hardness and increase the ductility and toughness of various steels, cast iron, and alloys.

Statement II – Quenching is a rapid cooling process that alters specific properties of materials by manipulating the cooling rate.

1. Statement (I) is correct but Statement (II) is incorrect.
2. Statement (I) and (II) both are incorrect.
3. Statement (I) is incorrect but Statement (II) is correct.

4. Statement (I) and (II) both are correct. ✅

Q.74 Which type of semiconductor material is typically used to construct a DIAC?

1. Copper
2. Silicon ✅
3. Gallium Arsenide
4. Aluminium

Q.75 What determines the appropriate current rating of a fuse in a circuit?

1. The length of the circuit wires
2. The voltage supplied to the circuit
3. The smallest cable rating in the circuit ✅
4. The number of electrical devices connected