



RRB ALP 2024 CBT 2

Assistant Loco Pilot · CEN 01/2024 · CBT 2 · Armature & Coil Winder Trade · Question Paper

English

Complete Paper · 175 Questions · Official Answer Key

About this Compilation

This booklet contains the complete question paper of the **RRB ALP 2024 CBT 2 (Armature & Coil Winder)** examination in **English**, with the correct option marked as per the official answer key.

✓ Correct option (highlighted green)

How to use

- Use the **Index** page to jump directly to any set (clickable).
- Questions appear section by section in the order of the paper, numbered 1 onward.
- Diagram and wide-table questions appear at full width at the end of their section.
- The correct answer is highlighted in green with a tick.

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Index — All Sets (click to open)

Set 1

06 May 2025

2:30 PM - 5:00 PM

Part A

100 Questions • Answer Key

Q1 Part A

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

- A. ₹42,000
- B. ₹45,000
- C. ₹48,000
- D. ₹40,000



Q2 Part A

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

- A. 5000 J
- B. 9000 J
- C. 1000 J
- D. 60 J



Q3 Part A

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?

$$47\ D\ 25\ A\ 5\ C\ 2\ B\ 9 = ?$$

- A. 60
- B. 58
- C. 56
- D. 62



Q4 Part A

T-Square is used to _____ in engineering drawings.

- A. transfer dimensions and dividing lines into a number of equal parts
- B. draw horizontal lines, parallel lines and to guide/hold the setsquares
- C. draw curved lines on drawing sheets
- D. support the drawing paper/tracing paper for making drawings



Q5 Part A

ABC Association meeting is to be held on the 2nd Sunday of next month. The cost of the registration is ₹50 per person. Lunch will be provided to the participants at an additional cost of ₹24. If the number of participants who paid for lunch was 100 more than the members who did not, and if the total receipts for registrations and lunch is ₹69,400, how many people registered and how many lunches are to be prepared, respectively?

- A. 1100 and 500
- B. 500 and 600
- C. 1100 and 1100
- D. 1100 and 600



Q6 Part A

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

- A. Random Pollution
- B. Point Source Pollution
- C. Radicle Pollution
- D. Non-point Source Pollution



Q7 Part A

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, % = NLP
- B. # = LIM, % = NKP
- C. # = LIN, % = NKP
- D. # = LIN, % = NKO



Q8 Part A

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 from hotter body to colder body.
- D. Conduction is the process of heat transfer that does not require any medium to transfer heat.



Q9 Part A

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. $4K$



B. $2K$

C. $K/2$

D. K

Q10 Part A

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

62 73 87 104 124 ?

A. 142

B. 134

C. 147



D. 153

Q11 Part A

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

A. Precision

B. Approximate

C. Accuracy



D. Mean

Q12 Part A

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

A. $BC < AC < AB$

B. $AB < AC < BC$

C. $AC < AB < BC$



D. $BC < AB < AC$

Q13 Part A

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. 12 V



B. 24 V

C. 2 V

D. 48 V

Q14 Part A

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. P

B. H

C. G

D. R

**Q15 Part A**

Which of the following is NOT a good heat conductor?

A. Aluminum

B. Copper

C. Fur



D. Iron

Q16 Part A

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. Internet Crime Complaint Center

B. National Cybercrime Reporting Station

C. Cyber Appellate Tribunal



D. Cybercrime Reporting Tribunal

Q17 Part A

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 reduce fuel consumption and improve overall efficiency

C. To protect human health from harmful fumes and dust in the air



D. To increase vehicle performance by optimising engine efficiency



Q18 Part A

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

A. Check if emergency lighting and backup power are functional ✓

B. Continue working as usual

C. Panic and leave the premises immediately

D. Ignore the situation and wait for power to return

Q19 Part A

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 is numbered 6. E lives on an even-numbered floor but not 4. The sum of floors on which E and B live is 9. Only three people live between A and C. The sum of floors on which F and C live is 3. What is the sum of floors on which B and F live?

A. 6

B. 5 ✓

C. 7

D. 4

Q20 Part A

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. 50 J ✓

B. 100 J

C. 120 J

D. 80 J

Q21 Part A

What is the dimensional equation of mass density (ρ) ?

A. $[M L^{-3} T^0]$ ✓

B. $[M L^{-2} T^0]$

C. $[M^0 L^3 T^0]$

D. $[M L^{-3} T^{-2}]$

Q22 Part A

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

A. -10°C to 110°C ✓

B. -100°C to 130°C

C. -10°C to 150°C

D. 35°C to 42°C

Q23 Part A

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

A. Section 29

B. Section 25

C. Section 21

D. Section 27 ✓

Q24 Part A

What is the value of 100 g in SI units?

A. 100 kg

B. 10 kg

C. 0.1 kg ✓

D. 1 kg

Q25 Part A

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

A. 44Ω

B. 220Ω

C. 1100Ω ✓

D. 0Ω

Q26 Part A

Which of the following is NOT correct?

A. The motion of satellite around Earth in a circular orbit is uniform circular motion.

B. The distance-time graph of an object moving with uniform speed is not a straight line. ✓

C. A person jogging in the park is not an example of uniform circular motion.

D. An object moving with a constant velocity represents uniform motion.

Q27 Part A

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

A. 3.5

B. 4 ✓

C. 3

D. 4.5



Q28 Part A

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

A. 0 m/s



B. 0.1 m/s

C. 3.3 m/s

D. 1.6 m/s

Q29 Part A

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

A. Increased accessibility to educational resources

B. Enhancement of communication channels

C. Privacy violations and data breaches



D. Reduction in administrative costs

Q30 Part A

What is the ratio of the areas of two successive format sheet sizes created by either halving along the length or doubling along the width?

A. 2 : 1

B. 4 : 1

C. 1 : 2



D. 1 : 4

Q31 Part A

The potential energy of an object is equivalent to the _____.

A. energy transferred



B. change in velocity

C. energy lost

D. change in speed

Q32 Part A

If $21.6 : x :: x : 29.4$, and $x > 0$, then find the value of x .

A. 23.9

B. 25.4

C. 25.2



D. 23.3

Q33 Part A

Read the given statement and conclusions carefully. Assuming that the information given in the statement 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 statement.

Statement:

Over the past year, there has been a noticeable increase in respiratory diseases in City W. According to a public health study, this increase is related to an increase in the number of cars on the road, which has raised air pollution levels.

Conclusions:

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

II. Improving public transportation would reduce respiratory illnesses in City W.

A. Only conclusion II follows.

B. Neither conclusion I nor II follows.

C. Both conclusions I and II follow.



D. Only conclusion I follows.

Q34 Part A

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. KF – HM



B. DY – AG

C. QL – NT

D. BW – YE

Q35 Part A

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

A. Job cycle charts



B. Labels and signs

C. Floor markings

D. Cleaning supplies



Q36 Part A

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

- A. 6.125 and $x = 1.2$
- B. -6.125 and $x = 0.25$
- C. 6.125 and $x = 1.25$
- D. -6.125 and $x = 1.25$ ✓

Q37 Part A

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. 180 ✓
- B. 184
- C. 175
- D. 185

Q38 Part A

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

Q16, O14, M12, K10, I8, ?

- A. H6
- B. G6 ✓
- C. G4
- D. J6

Q39 Part A

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

- A. 9 ✓
- B. 7
- C. 3
- D. 6

Q40 Part A

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

- A. Only bulb
- B. Only wire
- C. A closed conducting path with a voltage source ✓
- D. Only switch

Q41 Part A

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. 0.057 mm ✓
- B. 171 mm
- C. 0.57 mm
- D. 0.09 mm

Q42 Part A

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. B ✓
- C. A
- D. C

Q43 Part A

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. All conclusions I, II and III follow. ✓
- B. Only conclusions I and II follow.
- C. Only conclusions II and III follow.
- D. Only conclusions I and III follow.



Q44 Part A

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. 10 J

D. 3 J

Q45 Part A

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 $g = 10 \text{ ms}^{-2}$.)

A. 200 J

B. 250 N

C. 250 J



D. 100 J

Q46 Part A

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

A. ₹5,000

B. ₹6,000



C. ₹4,000

D. ₹6,500

Q47 Part A

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. JNEL

B. UYPW

C. CGXF



D. QULS

Q48 Part A

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. ₹3,460

B. ₹3,500



C. ₹3,350

D. ₹3,200

Q49 Part A

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. KXF : HZH

C. SZN : QBP



D. QEB : NBD

Q50 Part A

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

**Q51 Part A**

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. PS35

B. PS32



C. OS32

D. OR35



Q52 Part A

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

- A. The potential difference across the ends of a conductor is inversely proportional to the current flowing through it.
- B. The potential difference across the ends of a conductor is directly proportional to the current flowing through it. ✓
- C. 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 2Ω .
- D. Current through a resistor is directly proportional to its resistance.

Q53 Part A

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. 16 – 36 – 64 – 100 – 144
- B. 64 – 225 – 529 – 1444 – 3721 ✓
- C. 64 – 100 – 144 – 196 – 256
- D. 4 – 16 – 36 – 64 – 100

Q54 Part A

Which of the following actions involves scientific work?

- A. Climbing up the stairs ✓
- B. Spending time conversing with friends
- C. Watching a film
- D. Holding a large load on one's head while standing motionless

Q55 Part A

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. 3 – 10 – 29 – 66 – 127 ✓
- B. 3 – 6 – 11 – 18 – 27
- C. 38 – 51 – 66 – 83 – 102
- D. 123 – 146 – 171 – 198 – 227

Q56 Part A

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. 50 m^3
- B. 500 m^3
- C. 5 m^3 ✓
- D. 20 m^3

Q57 Part A

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

- A. The likely cause of the fire and the building owner's name
- B. The weather conditions at the time of the fire
- C. How the fire started and if someone is injured or missing ✓
- D. The colour of the smoke and the direction it is moving

Q58 Part A

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. 2
- C. 4
- D. 3

Q59 Part A

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

- A. 560
- B. 600
- C. 880 ✓
- D. 920

Q60 Part A

Which element is used in thermometers?

- A. Lead
- B. Mercury ✓
- C. Gallium
- D. Bromine



Q61 Part A

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

- A. Two thin blankets absorb more heat from the surroundings than one thick blanket.
- B. Two thin blankets allow more heat to escape, keeping you warmer.
- C. Two thin blankets generate more heat than one thick blanket.
- D. Two blankets create an additional insulating layer of air, reducing heat loss. ✓

Q62 Part A

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. EKJR ✓

B. VBZI

C. GMKT

D. IOMV

Q63 Part A

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

A. 78 m

B. 480 m ✓

C. 518 m

D. 103 m

Q64 Part A

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 ✓

Q65 Part A

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. Copper and aluminium are good conductors of heat. ✓

D. Dry air is a good conductor of heat.

Q66 Part A

What is the SI unit for solid angle?

A. Metre

B. Candela

C. Steradian ✓

D. Radian

Q67 Part A

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

A. 3

B. 7

C. 5

D. 1 ✓

Q68 Part A

The marked price of an article was ₹27,500. The shopkeeper gave two successive discounts; the first discount was 20%, and the second was at a rate of 30% of the first discount. What is the selling price (in ₹) of the article?

A. 20,860

B. 26,080

C. 20,086

D. 20,680 ✓

Q69 Part A

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

A. Improper disposal of industrial wastes ✓

B. Natural soil formation

C. Ozone layer depletion

D. Water evaporation



Q70 Part A

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. 682 – 341 – 291 – 381



B. 226 – 113 – 144 – 268

C. 586 – 293 – 244 – 328

D. 138 – 69 – 14 – 98

Q71 Part A

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. 45

B. 47

C. 37

D. 44

**Q72 Part A**

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. 1.25×10^{19}



B. 1.25×10^{20}

C. 0.25×10^{20}

D. 0.25×10^{19}

Q73 Part A

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. 80 km/hr

B. 85 km/hr

C. 90 km/hr



D. 75 km/hr

Q74 Part A

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

WU5, SQ7, NL11, ?

A. HE15

B. HF13



C. HF17

D. GE17

Q75 Part A

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

179 171 163 ? 147 139

A. 153

B. 151

C. 157

D. 155

**Q76 Part A**

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. 5



B. 3

C. 6

D. 8

Q77 Part A

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

A. It prevents overheating of the system.

B. It decreases the system's energy consumption.



C. It speeds up system breakdowns.

D. It increases the cost of energy.

Q78 Part A

Which of the following is NOT an SI unit?

A. Mole

B. Hour



C. Metre

D. Kilogram



Q79 Part A

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

A. Carbon Dioxide



B. Nitrogen

C. Oxygen

D. Helium

Q80 Part A

Which of the following statements is NOT true?

A. Clinical and laboratory thermometers are the same.



B. The range of clinical thermometer is 35 to 42°C.

C. Laboratory thermometer cannot be used to measure body temperature.

D. Clinical thermometer should not be used to measure the temperature of boiling water.

Q81 Part A

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

A. Neither in series nor in parallel

B. Directly to the power source only

C. In series with the circuit

D. In parallel across the points where potential difference is to be measured

**Q82 Part A**

How does retrofitting an old building with energy-efficient windows impact energy consumption?

A. It decreases the building's heating and cooling costs.



B. It causes a rise in indoor temperatures.

C. It has no effect on energy consumption.

D. It increases the need for artificial lighting.

Q83 Part A

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

A. Ability to create channels for broadcasting messages to large audiences



B. Integration with Facebook for seamless sharing

C. Voice and video calling capabilities

D. End-to-end encryption for all messages

Q84 Part A

What is the primary purpose of netiquette in online communication?

A. To increase the number of followers on social media

B. To improve typing speed

C. To enhance internet connection speed

D. To ensure polite and respectful interactions

**Q85 Part A**

Which of the following options is NOT a necessary characteristic of a kite?

A. The pairs of opposite angles are bisected by the corresponding diagonals.



B. At least one diagonal is bisected by the other diagonal.

C. At least one pair of opposite angles is congruent.

D. The diagonals are perpendicular to each other.

Q86 Part A

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

A. Heat produced in a resistor is directly proportional to the resistance for a given current.

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 inversely proportional to the square of the current for a given resistance.



D. Heat produced in a resistor is directly proportional to the square of the current for a given resistance.

Q87 Part A

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

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

A. A1

B. Z2

C. Z1



D. Y1



Q88 Part A

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. 96 : 135 : 101

B. 3 : 5 : 8

C. 21 : 35 : 44

D. 165 : 273 : 140

**Q89** Part A

In an electrical circuit, 'n' number of $1\ \Omega$ resistors are connected in parallel. When one of the resistors is eliminated, the overall resistance of the circuit is _____.

A. $\frac{1}{(n - 1)}$



B. Zero

C. $\frac{1}{n^2}$

D. $\frac{1}{n}$

Q90 Part A

$\frac{r}{10}\%$

A. $\frac{r^4}{10}$



B. $10r^4$

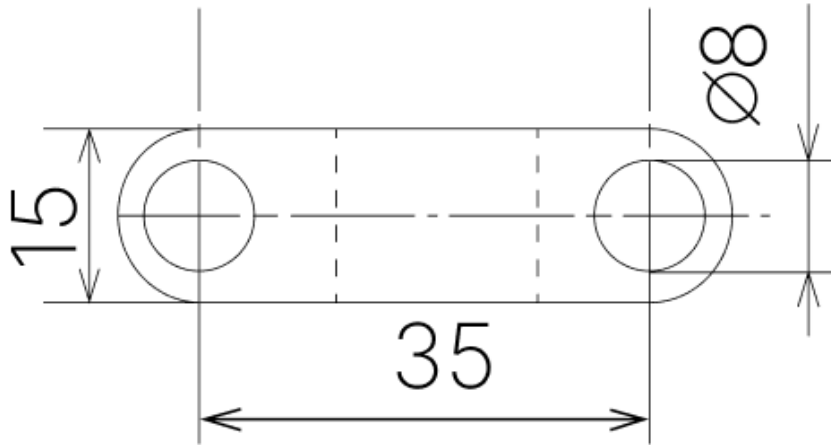
C. $\frac{r^4}{5}$

D. $\frac{r^4}{20}$



Q91 Part A

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



- A. Isometric view
- B. Oblique view
- C. Orthographic view
- D. Perspective view

**Q92 Part A**

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. 28
- B. 33
- C. 21
- D. 31



Q93 Part A

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. $32\frac{2}{7}$

B. $34\frac{3}{7}$

C. $34\frac{2}{7}$

D. $34\frac{2}{8}$

**Q94** Part A

By how much is 60% of 50 greater than $\frac{4}{5}$ of 35?

A. 4

B. 1

C. 3

D. 2

**Q95** Part A

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 $66\frac{2}{3}\%$.

What is the value of y?

A. 720

B. 750

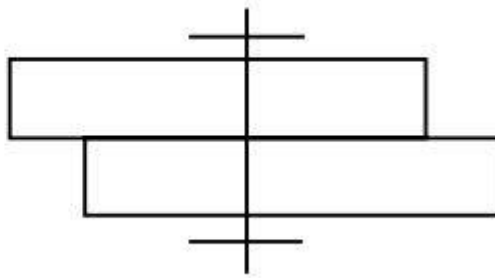
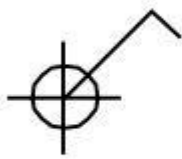
C. 600

D. 800



Q96 Part A

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

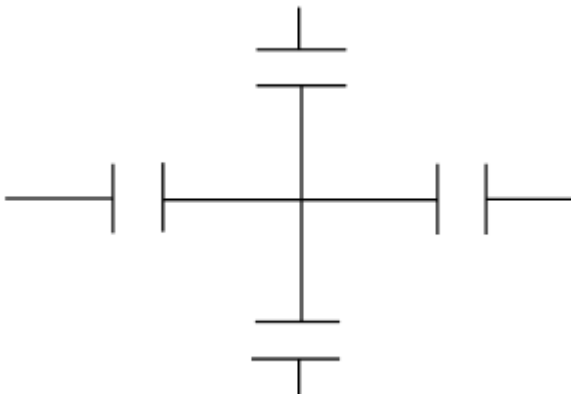


- A. Drilled on-site
- B. Fitted in the workshop
- C. Drilled in the workshop
- D. Drilled and fitted on-site



Q97 Part A

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

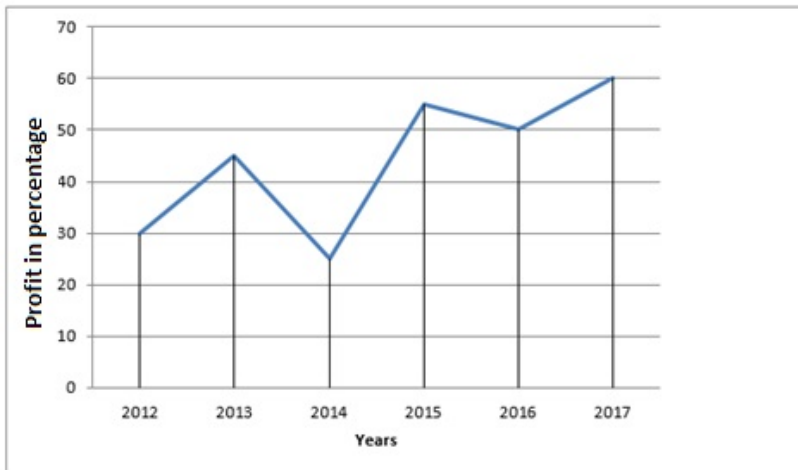


- A. Bend
- B. Union
- C. Tee
- D. Cross



Q98 Part A

Study the given graph and answer the question that follows.



What is the average profit percentage of the given years?

- A. 43.4%
- B. 45%
- C. 44%
- D. 44.1%

**Q99** Part A

If $x + y + z = 0$, then find the value of $\frac{x^2}{2yz} + \frac{y^2}{2xz} + \frac{z^2}{2xy}$.

- A. $\frac{3}{5}$
- B. $\frac{2}{5}$
- C. $\frac{3}{2}$
- D. $\frac{2}{3}$

**Q100** Part A

The cost of painting a spherical ball at the rate of ₹2.50 per cm^2 is ₹13,860. What is the diameter of the ball (use $\pi = (\frac{22}{7})$)?

- A. 48 cm
- B. 21 cm
- C. 42 cm
- D. 40 cm



Q101 Part B (Armature & Coil Winder)

The wave set of hacksaw teeth set has a pitch of _____.

- A. 2.0 mm
- B. 0.5 mm
- C. 0.8 mm
- D. 1.0 mm

**Q102** Part B (Armature & Coil Winder)

Which DC motor is preferred in steel rolling mills and elevators?

- A. Permanent Magnet DC Motor
- B. DC Series Motor
- C. Cumulative Compound Motor
- D. DC Shunt Motor

**Q103** Part B (Armature & Coil Winder)

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

- A. Blue
- B. Yellow
- C. Red
- D. Green

**Q104** Part B (Armature & Coil Winder)

Transformer is a _____.

- A. moving device
- B. static device
- C. synchronous motor as a rotating transformer
- D. rotating device

**Q105** Part B (Armature & Coil Winder)

Which of the following is the most common application of an Earth Leakage Circuit Breaker (ELCB)?

- A. Preventing electrical fires in buildings
- B. Protecting high-voltage transmission lines
- C. Detecting voltage fluctuations in the system
- D. Protecting electrical appliances from overload

**Q106** Part B (Armature & Coil Winder)

When should the measurement of electrode resistance be conducted during the installation of an earthing system?

- A. After backfilling the earth electrode
- B. At the time of initial design
- C. Only when the earthing system shows signs of malfunction
- D. Before backfilling the earth electrode

**Q107** Part B (Armature & Coil Winder)

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

- A. Letter width
- B. Letter height
- C. Stroke thickness
- D. Interline spacing

**Q108** Part B (Armature & Coil Winder)

Which of the following statements is INCORRECT about end standard?

- A. It measures the distance between two parallel flat surfaces.
- B. Faces are subject to wear.
- C. It is slower but more accurate.
- D. It is used to measure the distance between two engraved lines.

**Q109** Part B (Armature & Coil Winder)

What is the main purpose of the field winding in a DC generator?

- A. To conduct load current
- B. To produce the required magnetic field
- C. To reduce armature reaction
- D. To convert AC to DC

**Q110** Part B (Armature & Coil Winder)

The insulation resistance of any wiring installation should NOT be less than ____ for operating voltage 1000 volt.

- A. 100 ohm
- B. 1 mega ohm
- C. 1 kilo ohm
- D. 10 ohm



Q111 Part B (Armature & Coil Winder)

What should be done if a DC motor overheats during normal operation?

- A. Increase the motor speed
- B. Disconnect the field winding
- C. Reduce the load and check ventilation ✓
- D. Increase brush pressure

Q112 Part B (Armature & Coil Winder)

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

- A. 2 mA
- B. 1 mA
- C. 5 mA ✓
- D. 4 mA

Q113 Part B (Armature & Coil Winder)

Increasing which of the following will decrease the inductance of a solenoid?

- A. Core permeability
- B. Length of the coil ✓
- C. Cross-sectional area
- D. Number of turns

Q114 Part B (Armature & Coil Winder)

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. Continuous thick line
- C. Dashed thin line ✓
- D. Chain thin line

Q115 Part B (Armature & Coil Winder)

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. cyclists; left; interval
- B. vehicles; right; gap
- C. drivers; left; space
- D. pedestrians; right; distance ✓

Q116 Part B (Armature & Coil Winder)

A layer insulation cutter is widely utilised in AC motor winding to:

- A. sever the insulation material between the wire layers ✓
- B. insert the coil into the stator slots
- C. shorten the surplus wire post-winding
- D. measure the resistance of each coil winding

Q117 Part B (Armature & Coil Winder)

A transformer having a voltage ratio of 1000/100 V takes a current of 0.8 A from the primary current at a power factor of 0.6 under open circuit condition. Calculate the magnetising current of the transformer.

- A. 0.64 A ✓
- B. 0.48 A
- C. 1 A
- D. 0.36 A

Q118 Part B (Armature & Coil Winder)

Convert 8.5% into a decimal.

- A. 0.85
- B. 8.5
- C. 0.085 ✓
- D. 85

Q119 Part B (Armature & Coil Winder)

Which of the following switch types is required along with an intermediate switch to control a lamp from three or more positions?

- A. Two-way switches ✓
- B. One-way switches
- C. Dimmer switches
- D. Push-button switches

Q120 Part B (Armature & Coil Winder)

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. 90°
- B. 30° ✓
- C. 120°
- D. 45°



Q121 Part B (Armature & Coil Winder)

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

- A. 0°C to 100°C
- B. 35°C to 42°C ✓
- C. 0°C to 50°C
- D. -10°C to 110°C

Q122 Part B (Armature & Coil Winder)

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. 10 ohms
- B. 20 ohms
- C. 30 ohms ✓
- D. 40 ohms

Q123 Part B (Armature & Coil Winder)

If the supply frequency (f) of a transformer doubles, then the frequency on the transformer's secondary output voltage side will also:

- A. become three times
- B. become half
- C. become four times
- D. become double ✓

Q124 Part B (Armature & Coil Winder)

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 has a low melting point.
- C. Copper is abundant and inexpensive.
- D. Copper has high resistance to electricity.

Q125 Part B (Armature & Coil Winder)

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

- A. Cross-cut chisel
- B. Flat chisel
- C. Web chisel ✓
- D. Diamond point chisel

Q126 Part B (Armature & Coil Winder)

According to Faraday's law, the magnitude of induced EMF in a DC generator depends on the _____.

- A. length of the conductor only
- B. resistance of the conductor
- C. material of the conductor
- D. rate of change of magnetic flux ✓

Q127 Part B (Armature & Coil Winder)

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

- A. Double level single groove 'V' block
- B. Matched pair 'V' block
- C. Single level double groove 'V' block ✓
- D. Single level single groove 'V' block

Q128 Part B (Armature & Coil Winder)

The SI unit of temperature is/are _____.

- A. both kelvin and celsius
- B. celsius
- C. kelvin ✓
- D. fahrenheit

Q129 Part B (Armature & Coil Winder)

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. 1 ✓
- D. 2

Q130 Part B (Armature & Coil Winder)

Which of the following tests is most important for confirming the windings' insulation resistance, following a rewinding of an AC motor before motor starting?

- A. No-load test
- B. Insulation resistance test ✓
- C. Speed test
- D. Earth fault test



Q131 Part B (Armature & Coil Winder)

What should be checked after calculating the cross-section of the coil?

- A. Electrical resistance
- B. Magnetic flux
- C. Wire temperature
- D. Available space in the coil slot ✓

Q132 Part B (Armature & Coil Winder)

According to IEEE 80, the resistance of the ground system should be _____.

- A. equal to the system's total load current
- B. moderate to prevent excessive current flow
- C. as high as possible to ensure efficient operation
- D. low enough to allow fault currents to safely dissipate into the earth ✓

Q133 Part B (Armature & Coil Winder)

Which of the following statements about earth resistance in context of earthing is true?

- A. Earth resistance does not affect electrical safety.
- B. Higher earth resistance increases the effectiveness of grounding.
- C. Lower earth resistance improves the performance of an electrical system. ✓
- D. Earth resistance only affects power transmission efficiency.

Q134 Part B (Armature & Coil Winder)

For a DC motor installation with explosion-proof certification, which standard must be followed for enclosure and wiring compliance?

- A. ANSI C84.1
- B. ISO 9001
- C. IEC 60034-1 ✓
- D. NFPA 70

Q135 Part B (Armature & Coil Winder)

Data centre transformers commonly utilise laminated core materials, typically made of:

- A. Paper
- B. Amorphous ✓
- C. Plastic
- D. Rubber

Q136 Part B (Armature & Coil Winder)

Which parameters of two identical transformers are determined using Back-to-back test?

- A. Friction loss and resistance
- B. Mechanical loss and inductance
- C. Efficiency and voltage regulation ✓
- D. Friction loss and inductance

Q137 Part B (Armature & Coil Winder)

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

- A. 14 years ✓
- B. 12 years
- C. 16 years
- D. 18 years

Q138 Part B (Armature & Coil Winder)

Which component in a thermal relay is responsible for detecting temperature changes?

- A. Bimetallic element ✓
- B. Transformer
- C. Electromagnet
- D. Resistor



Q139 Part B (Armature & Coil Winder)

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 - 1, B - 2, C - 3, D - 4

B. A - 2, B - 3, C - 4, D - 1

C. A - 3, B - 2, C - 4, D - 1

D. A - 2, B - 1, C - 4, D - 3

Q140 Part B (Armature & Coil Winder)

What happens to the speed of a DC series motor when load decreases significantly?

A. Speed remains constant

B. Speed increases dangerously high

C. Speed decreases slightly

D. Speed reduces to zero

Q141 Part B (Armature & Coil Winder)

Toroidal inductors are shaped like a:

A. cone

B. ring

C. cube

D. cylinder

Q142 Part B (Armature & Coil Winder)

The dry-type transformer uses:

A. air as a coolant

B. moisture as a coolant

C. oil as a coolant

D. water as a coolant

Q143 Part B (Armature & Coil Winder)

In a long-shunt compound DC generator, the shunt field winding is connected _____.

A. in series with the armature

B. in parallel with both armature and series field winding

C. between the series field and load

D. only to the load

Q144 Part B (Armature & Coil Winder)

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

A. 125 cm²

B. 150 cm²

C. 200 cm²

D. 100 cm²

Q145 Part B (Armature & Coil Winder)

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. Spring joint calipers

B. Leg and point calipers

C. Simple calipers

D. Firm joint calipers

Q146 Part B (Armature & Coil Winder)

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

A. The resistance is doubled.

B. The resistance remains the same.

C. The resistance is halved.

D. The resistance quadruples.



Q147 Part B (Armature & Coil Winder)

Which of the following metals has the lowest melting point?

A. Mercury



B. Iron

C. Lead

D. Gold

Q148 Part B (Armature & Coil Winder)

What does the term 'Ferreed' in Ferreed relay stand for?

A. A type of current sensing relay

B. A combination of ferrite and reed switch



C. A voltage stabiliser component

D. A thermally operated relay

Q149 Part B (Armature & Coil Winder)

Which component(s) is/are required to obtain a proportional DC voltage for a voltage sensing relay?

A. Transformer and rectifier



B. Motor and generator

C. Resistor and inductor

D. Capacitor and diode

Q150 Part B (Armature & Coil Winder)

Which of the following statements is NOT correct for using scribes?

A. Scribe points are very sharp, so they are to be handled very carefully.

B. While scribing lines, the scribe is used like a pencil.

C. Do not put the scribe in your pocket.

D. Place a cork on the point when in use to prevent accidents.



Q151 Part B (Armature & Coil Winder)

For which purpose is mineral oil provided in an oil-filled transformer?

A. Prevent moisture

B. Insulation purpose only

C. Both cooling and insulation purpose



D. Cooling purpose only

Q152 Part B (Armature & Coil Winder)

In step-up transformer:

A. primary turns are more than secondary turns

B. primary turns are less than secondary turns



C. primary induced emf is more than secondary induced emf

D. primary turns are equal to secondary turns

Q153 Part B (Armature & Coil Winder)

How does an Earth Leakage Circuit Breaker (ELCB) work in an electrical system?

A. It compares the incoming and outgoing currents to detect imbalance, indicating leakage to earth.



B. It regulates the current flowing to the earth electrode.

C. It detects high current flow and trips to prevent overloads.

D. It monitors the voltage drop in the system.

Q154 Part B (Armature & Coil Winder)

Which class of insulation has the lowest temperature rating?

A. Class E

B. Class B

C. Class Y



D. Class A

Q155 Part B (Armature & Coil Winder)

In an ideal transformer, the primary and secondary windings resistance is:

A. 1000 ohm

B. 0 ohm



C. 100 ohm

D. 1000000 ohm

Q156 Part B (Armature & Coil Winder)

What is NOT an advantage of using plate earthing over other types of earthing?

A. More suitable for high-voltage systems



B. Low installation cost

C. Requires less maintenance

D. Provides low resistance in high-resistivity soil



Q157 Part B (Armature & Coil Winder)

What is the primary purpose of conducting a high-voltage withstand test on an AC motor after rewinding?

- A. To measure the power factor
- B. To check the motor's thermal efficiency
- C. To evaluate the balance of the motor's phases

D. To ensure the motor's insulation can withstand the rated voltage and prevent electrical breakdown ✓

Q158 Part B (Armature & Coil Winder)

In a four-band resistor, what does the third band represent?

A. Multiplier ✓

- B. First significant digit
- C. Tolerance
- D. Second significant digit

Q159 Part B (Armature & Coil Winder)

If inductance (L) is doubled, what happens to inductive reactance?

A. It remains the same.

B. It doubles. ✓

- C. It becomes zero.
- D. It becomes half.

Q160 Part B (Armature & Coil Winder)

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

A. Length of two adjacent sides ✓

- B. Length of one side and the area of the rectangle
- C. Only the length of one side
- D. Only the length of the diagonal

Q161 Part B (Armature & Coil Winder)

If 50 W of power is applied to the primary of an ideal transformer with a turns ratio of 10, the power delivered to the secondary load is:

- A. 500 W
- B. 100 W
- C. 50 W** ✓
- D. 5 W

Q162 Part B (Armature & Coil Winder)

What is the SI unit of 'volume'?

- A. Litres
- B. Cubic centimetre
- C. Cubic metre** ✓
- D. Millilitres

Q163 Part B (Armature & Coil Winder)

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. Both statements are false
- B. Statement 1 is false, but statement 2 is true

C. Statement 1 is true, but statement 2 is false ✓

D. Both statements are true

Q164 Part B (Armature & Coil Winder)

In the procedure of dismantling the burned winding wire from an AC motor stator, start with:

- A. cutting the power supply to the motor and taking the rotor off the stator** ✓
- B. removing the burned wire from the stator slots using a winding extractor
- C. removing the stator slot winding
- D. heating the stator core to soften the insulating, before cutting the winding wire

Q165 Part B (Armature & Coil Winder)

Short circuit test is carried out in transformers to determine which of the following?

- A. Hysteresis loss
- B. Eddy current loss
- C. Equivalent impedance of the transformer** ✓
- D. Iron loss



Q166 Part B (Armature & Coil Winder)

Apart from lamp holders, where else is a cord grip or underwriter's knot used?

- A. Pull switches** ✓
- B. Earthing systems
- C. High-voltage substations
- D. Circuit breaker panels

Q167 Part B (Armature & Coil Winder)

A typical sign that the stator winding of an AC motor might need rewinding is:

- A. reduced motor efficiency under load** ✓
- B. appropriate current consumption under load
- C. excessive vibration
- D. elevated insulating resistance

Q168 Part B (Armature & Coil Winder)

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. Only statement 1
- B. Neither statement 1 nor 2
- C. Only statement 2
- D. Both statements 1 and 2** ✓

Q169 Part B (Armature & Coil Winder)

If a DC motor fails to start, what should be checked first?

- A. Motor shaft alignment
- B. Field winding resistance
- C. Commutator polishing
- D. Power supply connections and voltage** ✓

Q170 Part B (Armature & Coil Winder)

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

- A. Shine
- B. Set
- C. Sort
- D. Sustain** ✓

Q171 Part B (Armature & Coil Winder)

Who is authorised to conduct road tests on workshop vehicles?

- A. Only trained and certified personnel** ✓
- B. Visitors to the workshop
- C. Any employee
- D. The company accountant

Q172 Part B (Armature & Coil Winder)

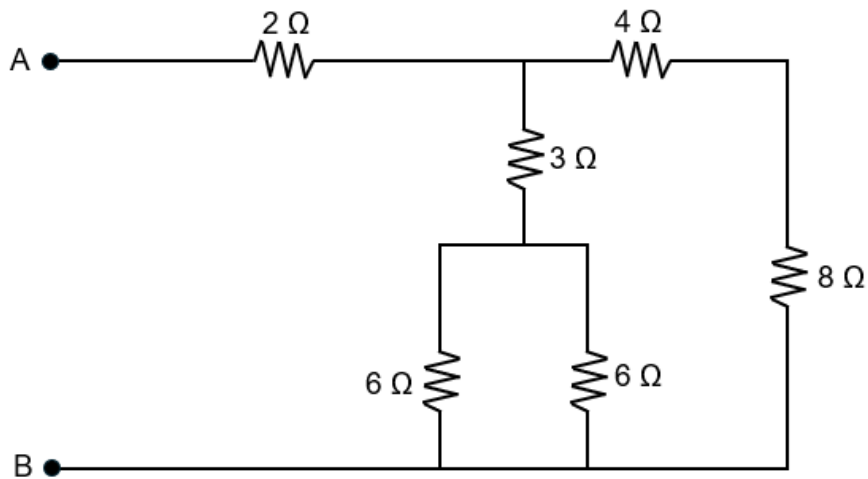
What may happen if a flexible cable in a pendant lamp is not secured with a cord grip or underwriter's knot?

- A. The lamp will consume more power.
- B. The lamp will emit dim light.
- C. The cable connection may come out, leading to a shock hazard.** ✓
- D. The ceiling will overheat.



Q173 Part B (Armature & Coil Winder)

After solving the series and parallel combinations, what is the final equivalent resistance between A and B?



A. $6\ \Omega$



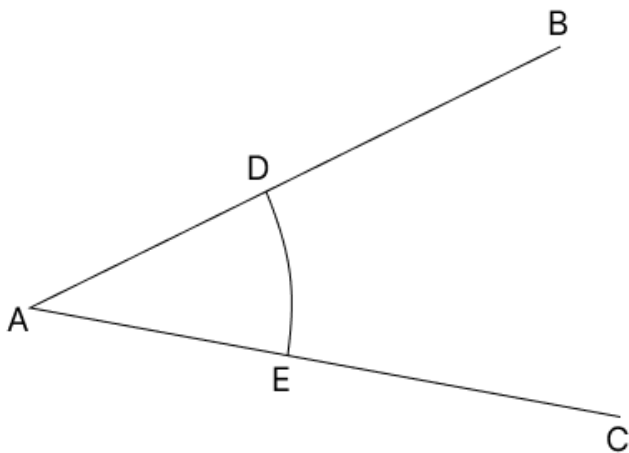
B. $4\ \Omega$

C. $8\ \Omega$

D. $10\ \Omega$

Q174 Part B (Armature & Coil Winder)

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



A. To find midpoint AB

B. To mark equal lengths

C. To intersect line AC

D. To intersect above A



Q175 Part B (Armature & Coil Winder)

What is the formula for the total capacitance of capacitors connected in parallel?

A. $C_{\text{Total}} = C_1 + C_2 + C_3 + \dots$



B. $\frac{1}{C_{\text{TOTAL}}} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} + \dots$

C. $C_{\text{TOTAL}} = \frac{(C_1 * C_2)}{(C_1 + C_2)}$

D. $C_{\text{TOTAL}} = (C_1 + C_2)^2$

