

# SSC & Railway Exams Home Assignment Answer Key



1. Which number will replace the question mark (?) in the following series?

39, 121, 245, 739, 1481, ?

- A. 4447                      B. 2025  
C. 5480                      D. 4120

Ans. A

Sol.

Logic is-

$$18 \times 2 + 3 = 39$$

$$39 \times 3 + 4 = 121$$

$$121 \times 2 + 3 = 245$$

$$245 \times 3 + 4 = 739$$

$$739 \times 2 + 3 = 1481$$

$$1481 \times 3 + 4 = 4447$$

Hence, the correct answer is option A.

2. Select the combination of letters that when sequentially placed in the gaps of the given

abba\_babb\_bbab\_abba\_ba\_b

- A. aaabb                      B. babaa  
C. baaab                      D. babbb

Ans. D

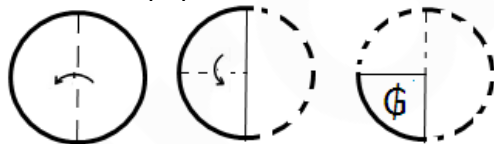
Sol.

Logic- abbabb is repeated 4 times.

abbabb/abbabb/abbabb/abbabb

Hence, the correct answer is option D.

3. The sequence of folding a piece of square paper and the manner in which the folded paper has been cut is shown in the figures X, Y and Z. How would this paper look when unfolded?



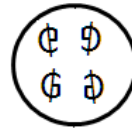
- A. B.   
C. D.

Ans. D

Sol.

As it is punched in a book-folding manner and then again it gets punched. So, when we open it up

there will be figure as shown in option (D).



Hence, option (D) is correct.

4. Select the option which has same relationship as the number set given below.

(25, 65, 169)

- A. (15, 75, 247)  
B. (75, 195, 507)  
C. (18, 39, 120)  
D. (55, 105, 235)

Ans. B

Sol.

$$\text{As, } 25 \times 13/5 = 65$$

$$65 \times 13/5 = 169$$

$$\text{Similarly, } 75 \times 13/5 = 195$$

$$195 \times 13/5 = 507$$

Hence, the correct answer is option B.

5. Select the correct alternative to indicate the arrangement of the following words in a logical and meaningful order.

- 1) Microwaves
- 2) Ultraviolet Waves
- 3) Infrared Waves
- 4) Radio Waves
- 5) X- Rays
- 6) Visible Light Rays
- 7) Gamma Rays

A. 4, 1, 5, 6, 2, 3, 7

B. 4, 1, 3, 6, 2, 5, 7

C. 7, 1, 3, 6, 2, 5, 4

D. 4, 2, 3, 6, 1, 5, 7

Ans. B

Sol.

Correct order of electromagnetic waves from lowest to highest frequency is-

4. Radio Waves

1. Microwaves

3. Infrared Waves

6. Visible Light Rays

2. Ultraviolet Waves

5. X- Rays

7. Gamma Rays

Correct order is : 4, 1, 3, 6, 2, 5, 7.

Hence, option B is the correct response.



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6. Ohm's law in electricity is expressed as which of the following equation?

- A.  $Q = IT$                       B.  $P = IV$   
C.  $R = I/A$                       D.  $V = IR$

Ans. D

Sol.

• The Ohms law of electricity states relation between Potential Difference, Current and Resistance of a circuit and is **expressed as  $V=IR$** .

• The law says that, If the potential difference across the two ends of a conductor is 1 V and the current through it is 1 A & the resistance of the conductor is 1 ohm.

7. Above which temperature, a magnetic substance is converted into paramagnetic substance?

- A. Curie Temperature  
B. Adam Temperature  
C. Critical Temperature  
D. Newton Temperature

Ans. A

Sol.

• **Above Curie temperature**, a magnetic substance is converted into Paramagnetic substance.

• The Curie temperature is the critical point at which a material's intrinsic magnetic moments change direction.

• Paramagnetic materials are non-magnetic when a magnetic field is absent and magnetic when a magnetic field is applied.

8. 'Zonda' is a name given to local wind of which country?

- A. India                      B. Kenya  
C. Argentina              D. Canada

Ans. C

Sol.

• **Zonda is regional wind of Argentina.**

• They occur on the eastern slope of Andes Mountain Range.

• It is a dry wind and can attain speed of 120 kilometres per hour.

• They carry large amount of dust in dry weather. These winds tend to move at their peak daytime.

• This wind is also sometimes called as Sondo.

9. Who among the freedom fighters of India was not honoured with Bharat Ratna?

- A. Vinoba Bhave  
B. Jawahar Lal Nehru  
C. Khan Abdul Gaffar Khan  
D. Aurbindo ghosh

Ans. D

Sol.

• **Sri Aurbindo Ghosh is not a recipient of Bharat Ratan.**

• **Jawahar Lal Nehru** was awarded Bharat Ratan in **1955** for his contributions in political field of nation.

• **Vinobha Bhave** was awarded Bharat Ratan in **1983**. He was an excellent freedom fighter and also recognised for 'Bhudaan Movement' across the country.

• **Khan Abdul Gaffar Khan was awarded Bharat Ratan in 1987**. He was an independence activist and Pashtun leader and he also was a follower of Mahatma Gandhi.

10. Which of the following articles of the Indian Constitution is related to the appointment of the Governor?

- A. Article 155                      B. Article 153  
C. Article 168                      D. Article 157

Ans. A

Sol.

• Article 152-162 are related to Governor.

• Article 153 states that 'There shall be a Governor for each State'.

• **Article 155** is related to the appointment of Governor and states that 'The Governor of the State shall be appointed by the President by warrant under his hand and seal'.

11. If  $\operatorname{cosec} 2\theta = \sec (3\theta - 15^\circ)$ , then  $\theta$  is equal to:

- A.  $22^\circ$                       B.  $25^\circ$   
C.  $21^\circ$                       D.  $20^\circ$

Ans. C

Sol.

We know,  $\operatorname{cosec}\theta = \sec(90^\circ - \theta)$



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So, we can write  $\operatorname{cosec} 2\theta = \sec (90^\circ - 2\theta)$

According to question,

$$\sec (90^\circ - 2\theta) = \sec (3\theta - 15^\circ)$$

comparing both sides,  $90^\circ - 2\theta = 3\theta - 15^\circ$

$$\theta = 21^\circ$$

12. If  $(5a-3b) : (4a-2b) = 2:3$ , then  $a:b$  is equal to:

A.  $3 : 4$                       B.  $5 : 7$

C.  $2 : 3$                       D.  $5 : 8$

Ans. B

Sol.

$$\frac{(5a-3b)}{(4a-2b)} = \frac{2}{3}$$

Given is,

$$\text{On solving, } 15a - 9b = 8a - 4b$$

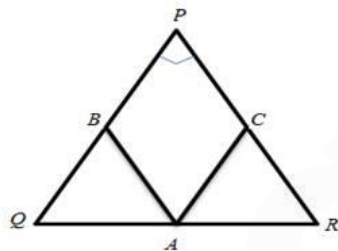
$$7a = 5b$$

$$\frac{a}{b} = \frac{5}{7}$$

We have,

$$\text{Required } a:b = 5:7$$

13. In the adjoining figure PQR is a right-angled triangle  $\angle P = 90^\circ$ , PCAB is a square, QA = 5 cm and QR = 9 cm. What is the area of triangle PQR?



A.  $30 \text{ cm}^2$

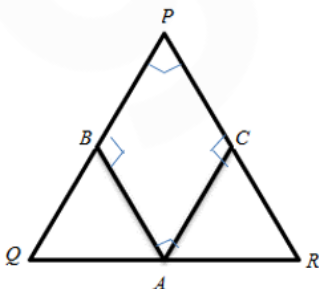
B.  $44.45 \text{ cm}^2$

C.  $56.22 \text{ cm}^2$

D.  $70 \text{ cm}^2$

Ans. B

Sol.



$$\triangle QBA \sim \triangle QPR$$

$$\frac{QA}{QR} = \frac{AB}{PR} \dots\dots(1)$$

$$\triangle ACR \sim \triangle QPR$$

$$\frac{AR}{QR} = \frac{AC}{QP} \dots\dots\dots(2)$$

From (1) & (2)

$$\frac{QA}{QR} = \frac{QP}{PR} = \frac{5}{4}$$

$$PQ^2 + PR^2 = QR^2$$

$$(5k)^2 + (4k)^2 = 81$$

$$k^2 = \frac{81}{41}$$

$$\triangle PQR = \frac{1}{2} \times 5k \times 9k = \frac{45k^2}{2}$$

$$= \frac{45}{2} \times \frac{81}{41} = 44.45$$

14. The value of the expression

$$1 - \frac{\sin^2 y}{1 + \cos y} + \frac{1 + \cos y}{\sin y} - \frac{\sin y}{1 - \cos y}$$
 is equal

to?

A. 0

B.  $\sin y$

C.  $\cos y$

D. 1

Ans. C

Sol.

The expression can be written as

$$\frac{1 + \cos y - \sin^2 y}{1 + \cos y} + \frac{(1 - \cos^2 y) - \sin^2 y}{\sin y(1 - \cos y)}$$

$$= \frac{\cos y(1 + \cos y)}{1 + \cos y} + 0 = \cos y$$

15. Simplify 68% of 595 - 43% of 372:

A. 244.64

B. 232.84

C. 278.44

D. None of these

Ans. A

Sol.

$$595 * \frac{68}{100} - 372 * \frac{43}{100}$$

$$= 404.6 - 159.96$$

$$= 244.64$$



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