



## RRB NTPC Aptitude Questions PDF

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## Instructions

For the following questions answer them individually

### Question 1

Find the last two digits of the number  $67^{225}$ .

- A 77
- B 27
- C 07
- D 37

**Answer:** C

#### Explanation:

Let 'N' be the last two digits of the number  $67^{225}$ .

We can say that  $N = 67^{225} \pmod{100}$

$$\Rightarrow N = (67^{224} * 67) \pmod{100}$$

$$\Rightarrow N = ((67^2)^{112} * 67) \pmod{100}$$

$$\Rightarrow N = (4489^{112} * 67) \pmod{100}$$

$$\Rightarrow N = (89^{112} * 67) \pmod{100}$$

$$\Rightarrow N = (11^{112} * 67) \pmod{100}$$

$$\Rightarrow N = (21 * 67) \pmod{100}$$

$$\Rightarrow N = 07$$

### Question 2

What is the ratio of the sum of first 25 odd natural numbers to next 25 odd natural numbers?

- A 1 : 4
- B 2 : 7
- C 1 : 2
- D 2 : 5
- E 1 : 3

**Answer:** E

#### Explanation:

Sum of first 25 odd natural numbers =  $1 + 3 + 5 + \dots + 49 = (25)^2 = 625$

Sum of the next 25 odd natural numbers = sum of first 50 odd natural numbers - sum of first 25 odd natural numbers

Sum of the next 25 odd natural numbers =  $(50)^2 - (25)^2 = 1875$

Hence the required ratio =  $625 : 1875 = 1 : 3$ .

Hence, option E is the correct answer.

### Question 3

Kishor intended to multiply a two-digit natural number and a three-digit natural number, but he left out the multiplication sign and simply placed the two-digit number to the left of the three-digit number, thereby forming a five-digit number. This number is exactly nine times the product Kishor would have obtained. What is the sum of the two-digit number and the three-digit number?

- A 126
- B 147
- C 151
- D 159

**Answer:** A

#### Explanation:

Let  $x$  be the two-digit number,  $y$  be the three-digit number. Putting together the given, we have

$$1000x + y = 9xy$$

$$\Rightarrow 9xy - 1000x - y = 0$$

$$\Rightarrow (9x - 1)\left(y - \frac{1000}{9}\right) = \frac{1000}{9}$$

$$\Rightarrow (9x - 1)(9y - 1000) = 1000$$

We know that  $x$  is a two digit number hence  $89 \leq (9x - 1) \leq 890$ .

Hence, we have to check the solution for every divisor of 1000 which is greater than 89 and less than 890.

Divisors of 1000, which are greater than 89 and less than 890 = (100, 125, 200, 250, 500)

We can see that only at  $(9x - 1) = 125$ ,  $(9y - 1000) = 8$

i.e.  $y = 112$  also  $(9x - 1) = 125$ , i.e.  $x = 14$

For any other value of  $(9x - 1)$  we get non integer values of  $y$  which is not possible because  $y$  is a three digit number.

Hence, the required sum =  $x + y = 14 + 112 = 126$ .

Therefore, option A is the correct answer.

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### Question 4

A bag has 5 black balls, 4 green balls and 3 yellow balls. Ram draws 3 balls from this bag without replacement. What is the probability that all the balls drawn by Ram are not of the same colour?

- A  $\frac{3}{44}$
- B  $\frac{10}{11}$
- C  $\frac{41}{44}$
- D  $\frac{37}{44}$

**Answer:** C

**Explanation:**

There are  $5+4+3 = 12$  balls in total.

Ram can draw 3 balls in  ${}^{12}C_3 = 220$  ways.

Now, all the 3 balls drawn by Ram can be of black, green, or yellow colour.

All the balls drawn by Ram can be of the same colour in  ${}^5C_3 + {}^4C_3 + {}^3C_3 = 10+4+1 = 15$  ways.

=> Number of ways in which Ram can draw 3 balls such that all 3 of them are not of the same colour =  $220 - 15 = 205$ .

The required probability is  $205/220 = 41/44$ .

Therefore, option C is the right answer.

**Question 5**

**How many two-digit numbers, with a non-zero digit in the units place, are there which are more than thrice the number formed by interchanging the positions of its digits?**

**Answer:6**

**Explanation:**

Let 'ab' be the two digit number. Where  $b \neq 0$ .

We will get number 'ba' after interchanging its digit.

It is given that  $10a+b > 3*(10b + a)$

$$7a > 29b$$

If  $b = 1$ , then  $a = \{5, 6, 7, 8, 9\}$

If  $b = 2$ , then  $a = \{9\}$

If  $b = 3$ , then no value of 'a' is possible. Hence, we can say that there are a total of 6 such numbers.

**Question 6**

**In how many ways can the letters of the word GULLIBLE be arranged such that no 2 vowels are adjacent to each other?**

A 14400

B 1200

C 2400

D 1440

**Answer: C**

**Explanation:**

GULLIBLE contains 8 letters.

There are 5 consonants. Therefore, 6 spaces will be created around these consonants.

The consonants can be arranged in  $5!/3! = 20$  ways.

The 3 vowels can be put in any 3 of these 6 spaces.

The 3 spaces can be selected in  ${}^6C_3 = 20$  ways.

The 3 vowels can be arranged in  $3! = 6$  ways.

Therefore, the total number of ways in which the letters of the word GULLIBLE can be arranged such that no 2 vowels are together is  $20 \times 20 \times 6 = 2400$ .

Therefore, option C is the right answer.

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### Question 7

A coin of diameter  $3\text{cm}$  is thrown on a square mat of area  $100\text{cm}^2$ . What is the probability that the coin will fall entirely within the square?

A 0.7225

B 0.64

C 0.16

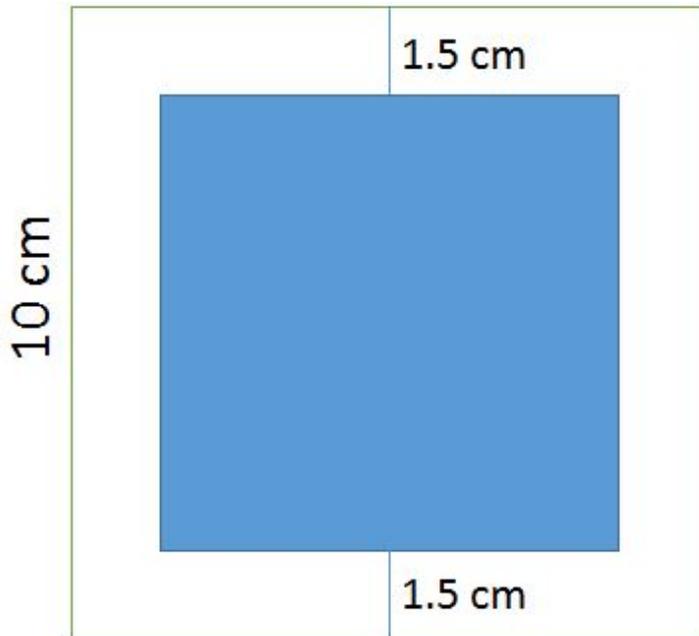
D 0.49

**Answer:** D

### Explanation:

The area of the square mat is  $100\text{cm}^2$ . Therefore, the side of the mat must be  $\sqrt{100} = 10\text{cm}$ .

The centre of the coin must be at least  $1.5\text{cm}$  away from the edge of the mat if the coin were to lie completely within the mat. Therefore, the area within which the centre of the coin can fall will be a square of side  $10 - 2 \times 1.5 = 7\text{cm}$ .



Therefore, the area inside which the centre of the coin can fall =  $49\text{cm}^2$ .

Total area =  $100\text{cm}^2$ .

Therefore, the probability is  $\frac{49}{100} = 0.49$ . Hence, option D is the right answer.

#### Question 8

The number of ways in which 8 students can be allotted 3 distinct classes such that each class contains at least 2 students is

- A 420
- B 1680
- C 2940
- D 1260

**Answer: C**

#### Explanation:

8 students can be distributed as (3,3,2) or (2,2,4).

Now, let us solve the cases separately and then finally add them.

Case 1: (3,3,2)

The class that gets 2 students can be selected in  ${}^3C_2 = 3$  ways.

Now, the 2 students can be selected in  ${}^8C_2 = 28$  ways.

The 3 students for the second class can be chosen in  ${}^6C_3 = 20$  ways.

Therefore, the arrangement (3,3,2) can be done in  $3 \times 28 \times 20 = 1680$  ways.

Case 2: (2,2,4)

The class that gets 4 students can be selected in  ${}^3C_1 = 3$  ways.

Now, 4 students for this class can be selected in  ${}^8C_4 = 70$  ways.

The 2 students for the second class can be chosen in  ${}^4C_2 = 6$  ways.

Therefore, the arrangement (2,2,4) can be done in  $3 \times 70 \times 6 = 1260$  ways.

Therefore, the total number of ways in which 8 students can be allotted 3 classes such that each class gets at least 2 students is  $1680 + 1260 = 2940$  ways. Therefore, option C is the right answer.

### Question 9

Find the option which should replace (?), so that the second pair shares the same relation as the first pair.

A3B : K :: D2E : ?

A Z

B X

C O

D M

**Answer:** B

### Explanation:

The square of the number is added to product of the numerical values of the letters. The letter corresponding to the resulting number is written.

$$A3B : 3^2 + (1)(2)$$

$$A3B : I (11)$$

Similarly,

$$D2E : 2^2 + (4)(5)$$

$$D2E : X (24)$$

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### Question 10

In each of the following question select the related numbers/words/letters from the given options.

AF : LU :: PJ : ?

A AY

B BY

C AX

D BX

**Answer:** A

### Explanation:

$$A + 11 = L$$

$$F - 11 = U$$

$$P + 11 = A$$

J - 11 = Y

Hence, option A is the right answer.

### Question 11

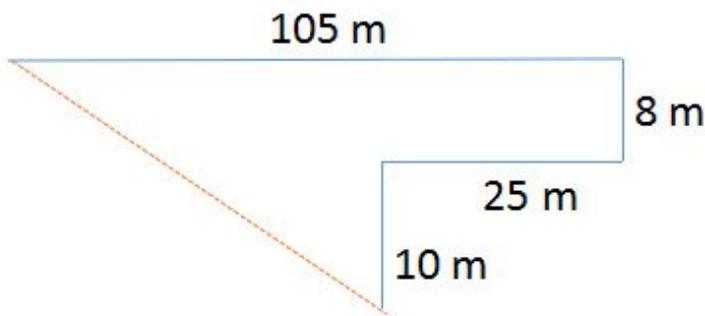
Pramod walks 10 m towards the North. Then, he takes a right turn and walks 25 m. Then he takes left turn and walks 8 m. Finally, he takes a left turn and walks 105 m. How far is Pramod from his starting point?

- A 80 m
- B 82 m
- C 100 m
- D 75 m

**Answer:** B

### Explanation:

The given statements can be expressed diagrammatically as follows:



Total distance traveled in the North-South direction =  $10 + 8 = 18$  m

Total distance traveled in the East- West direction =  $105 - 25 = 80$  m

Applying Pythagoras theorem, we get, distance =  $\sqrt{18^2 + 80^2}$

$$= \sqrt{324 + 6400}$$

$$= \sqrt{6724}$$

$$= 82 \text{ m.}$$

Therefore, option B is the right answer.

### Question 12

Bunty walks 7 km to the north and then turns  $90^\circ$  clockwise to walk 4 km, after which he takes a right turn to walk 5 km and again take a right turn to walk for 4 km to reach destination. How far is he from the starting point?

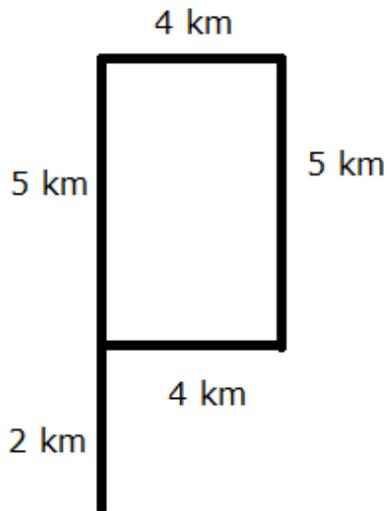
- A 3 km
- B 5 km
- C 2 km

D 4 km

Answer: C

Explanation:

Refer to the diagram below -



The horizontal distance towards the north will be the shortest distance which is  $7 - 5 = 2$  km  
Hence, option C is the right answer.

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Question 13

In each of the following question select the related numbers/words/letters from the given options.

USA : Dollar :: Finland : ?

A Pound

B Dollar

C Euro

D Franc

Answer: C

Explanation:

The currency of the USA is dollar and currency of Finland is Euro.

Hence, option C is the right answer.

Question 14

Find the word which should replace (?), so that the second pair shares the same relation as the first pair.

Wealth : Coffin :: ? : Coffin

- A Soldier
- B Cadaver
- C Veteran
- D Brain

**Answer: B**

**Explanation:**

Wealth is kept in a coffer. Similar relationship is shared by cadaver (corpse) and coffin. Hence, option B is the correct answer.

**Question 15**

**Find the word that best replaces the question mark:**

**Country : Prime Minister :: State : ?**

- A Governor
- B Chief Minister
- C Council of Ministers
- D President

**Answer: B**

**Explanation:**

Prime Minister is the head of the Government for the country and Chief Minister is the head of the Government for the state. So, option b) is the correct answer.

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**Question 16**

**Pointing to photograph, Ravi (male) said 'This man's sister's father is my mother's father in law's only child'. If Ravi is only son of his parents then, how is the man in the photograph related to Ravi?**

- A Uncle
- B Nephew
- C Cousin
- D The photograph is of Ravi himself

**Answer: D**

**Explanation:**

Ravi's mother's father in law's only child will be Ravi's father. Since Ravi is only son of his parents so the photograph must be of Ravi himself. Thus, option D is the right answer.

**Question 17**

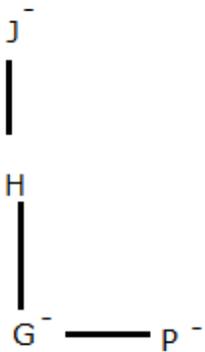
**P is the sister of G. J is the mother of H. G is the daughter of H. How is J related to P?**

- A Sister
- B Grandmother
- C Granddaughter
- D Daughter

**Answer: B**

**Explanation:**

Refer to the following diagram -



Since G is the daughter of H and P is the sister of G, P also must be the daughter of H. Also, J is the mother of H so J must be grandmother of P.

Hence, option B is the right choice.

**Question 18**

**Amit points towards a Sheela and says, "She is the daughter of my father's younger sister." How is the older daughter of Amit's father's elder sister related to Sheela?**

- A sister
- B cousin
- C aunt
- D niece

**Answer: B**

**Explanation:**

From the question, we understand that Amit's father has two sisters. We want to know how the daughter of the elder sister is related to the daughter of the younger sister. So, they are cousins.

## RRB Group-D Previous Papers

### Question 19

John is the son of Peter. Sarah, Peter's sister has a son Paul and a daughter Max. Fanny is the maternal uncle of Paul. How is John related to Paul?

- A nephew
- B uncle
- C cousin
- D brother

**Answer:** C

### Explanation:

Paul's maternal uncle is Fanny. Since Paul is Peter's sister's son, Peter is also the maternal uncle of Paul. John is the son of Peter. So, John and Paul are cousins.

### Question 20

Today is Saturday, After 43 days it will be ?

- A Wednesday
- B Friday
- C Sunday
- D Tuesday

**Answer:** C

### Explanation:

Today is Saturday.

Each day of the week is repeated after every 7 days.

Hence, after 42 days it will be Saturday.

So after 43 days, it will be Sunday.

So the answer is option C.

### Question 21

Which of the following is not a leap year?

- A 1800
- B 1864
- C 1600
- D 1624

**Answer:** A

**Explanation:**

We know that all the years that are a multiple of 4 but are not centuries are leap years.

Hence, 1864 and 1624 are leap years.

Also, all the years that are multiple of 400 are leap years.

Hence, 2000 is a leap year.

=> 1800 is not a leap year.

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### Question 22

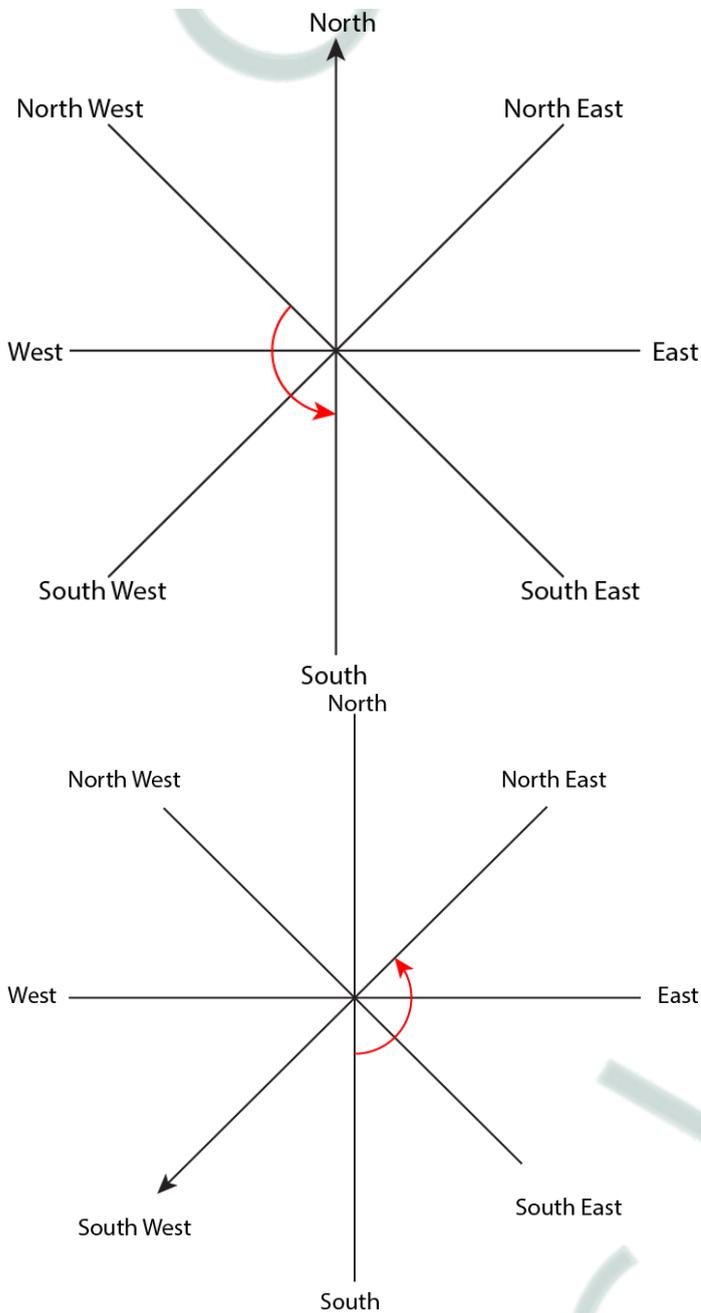
If the north west direction becomes south, then which direction's place will south take?

- A North
- B South-East
- C East
- D North-East

**Answer:** D

**Explanation:**

Refer to the following diagram.



When north-west direction becomes south, the axes rotate by 135 degrees in a counter-clockwise direction. All the directions will rotate in this way only. North East is 135 degrees counter clockwise to south.

**Question 23**

**If 1st July, 1977 was a Friday then 1st July 1970 was a**

- A Wednesday
- B Thursday
- C Sunday
- D Tuesday

**Answer: A**

**Explanation:**

There are 7 years between the two except two of them are leap years.

In a normal year, there are 365 days. 365 when divided by 7 leaves a remainder of 1. So, 1 July of a year and 1 July of the previous year are one weekday apart. If it is a leap year, 1 July of a year and 1 July of a previous year are separated by 2 weekdays. So, If July 1, 1977 was a Friday, 1st July 1976 is a Thursday and 1st July 1975-tuesday 1st July 1974-monday 1st July 1973-sunday 1st July 1972-saturday 1st July 1971-thursday 1st July 1970-wednesday

#### Question 24

Arrange the following words in the order in which they will appear in a dictionary.

1. Radical
2. Radiation
3. Radio
4. Rational
5. Racial

- A 5, 1, 3, 2, 4
- B 5, 2, 1, 3, 4
- C 2, 5, 3, 4, 1
- D 2, 3, 5, 1, 4

**Answer:** B

#### Explanation:

'c' comes before 'd'. Hence, 'racial' will be the first word in the dictionary order. 't' comes after 'd'. Hence, 'rational' will be the last word in the dictionary. 'a' comes first followed by 'c' and then o. Hence, the order of first three words will be radiation, radical and then radio. Thus, the correct order of the words will be 52134. Thus, option B is correct.

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#### Question 25

Arrange the following words in the order in which they appear in the dictionary:

1. Epiglottis
2. Epidemic
3. Epicentre
4. Ephemeral
5. Euphemism

- A 4,1,2,3,5
- B 4,3,2,1,5
- C 4,3,1,2,5

D 4,1,3,2,5

Answer: B

**Explanation:**

Clearly, Euphemism is the last word since 'E' is followed by U.

Ephemeral is the first word since 'h' comes before 'i' in the alphabetical series.

Among the others, epicentre must precede epidemic. Epidemic must precede epiglottis.

Therefore, the final arrangement is ephemeral, epicentre, epidemic, epiglottis, euphemism.

4, 3, 2, 1, 5 is the correct order. Hence, option B is the right answer.

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