Section 1 – Cognitive

Section Summary

- No. of Questions: 50

- Duration: 50 min
  Additional Instructions:

  None

Q1.
A 5-digit number has a peculiar characteristic wherein the product of the first two digits with the last two digits minus the central digit results in a string that consists same numbers in all the digits. Which of the following option satisfies this condition?

| 14793 |
| 39157 |
| 12345 |
| 34753 |

Q2.
The sum of the three numbers is 264. If the first number is twice the second and the third number is one-third of the first, then the second number is

| 82 |
| 72 |
| 76 |
| 87 |

Q3.
At an election between two candidates, the candidate who got 66 % of the votes casted won by 3072 votes. Find the total number of the voters on the voting list if 80% people casted their vote and there were no invalid votes.

| 15000 |
| 12000 |
| 14000 |
| 18000 |

Q4.
A bag contains 600 coins of 25 p denomination and 1200 coins of 50 p denomination. If 12% of 25 p coins and 24% of 50 p coins are removed, the percentage of money removed from the bag is _____ .

| 21.6% |

15.3%

14.6%

12.5%

Q5.
A sum of Rs.550 was taken as a loan. This is to be paid back in two equal instalments. If the rate of interest is 20% compounded annually, then the value of each instalment is :

Rs.360

Rs.280

Rs.250

Rs.320

Q6.
An amount of money grows upto Rs.4840 in 2 yrs and upto Rs.5324 in 3 yrs on compound interest. Find the rate percent.

6%

10%

12%

15%

Q7.
A mixture of 20 kg of spirit and water contains 10% water. How much water must be added to this mixture to raise the percentage of water to 25%?

4 kg

5 kg

8 kg

30 kg

Q8.
Two vessels contain milk and water in the ratio 3:2 and 7:3. Find the ratio in which the contents of the two vessels to be mixed to get a new mixture in which the ratio of milk and water is 2:1?

2 : 1

1 : 2

4 : 1
1 : 4

Q9.
The average wage of 500 workers was found to be Rs. 200. Later on, it was discovered that the wages of two workers were misread as 170 and 30 instead of 90 and 210. The correct average wage is :

Rs. 200.10
Rs. 200.20
Rs. 200.50
Rs. 201.00

Q10.
The wages of 36 women for 46 days amount to Rs.19872. How many men are needed for 42 days to receive Rs.15120, if the daily wages of a man being 5 times those of a woman?

9 men
8 men
6 men
5 men

Q11.
A boy walking at a speed of 15 km/hr reaches his school 20 min late. Next time he increases his speed by 5 km/h but still, he is late by 5 min. Find the distance of the school from his home.

5 km
10 km
15 km
20 km

Q12.
A man is walking at the rate of 10 kmph. After every km, he rests for 5 minutes. The time taken by him to cover 5 km will be

20 min
50 min
40 min

30 min

Q13.
In how many ways 5 rings can be worn on 4 fingers?

120

512

1044

1024

Q14.
A box contains 7 red, 6 white and 4 blue balls. If 3 balls are randomly picked from the box and the red coloured ball should not be taken, then the number of ways of selecting is _____.

30

120

60

None of the options

Q15.
Three letters are written to different persons and addresses on the envelopes are also written. Without looking at the addresses, the letters are put into the envelope. The probability that the letters go into the right envelopes is

1/6

2/5

3/4

1/8

Q16.
The amount he received as a return on investment from equities, Dinesh planned to buy few home accessories on sale. He bought a fan and a carriage worth Rs. 3000. Later his friend got the same fan and carriage from Dinesh, Dinesh sold the carriage at a loss of 20% and the fan with a profit of 25%. In this overall transaction, Dinesh gained exactly 6 percent . What would have been the cost of fan Dinesh bought ? (approximately)

1280

1733

2000

2320

Q17.
Find the product of : 730*101

73730
73073
73037
77330

Q18.
The average weight of 21 boys was recorded as 64 kgs. If the weight of the teacher was added, the average increased by one kg. What was the teacher's weight?

86
64
72
98

Q19.
Six friends are sitting in a circle and are facing the center of the circle. Deepa is between Prakash and Pankaj. Priti is between Mukesh and Lalit. Prakash and Mukesh are opposite to each other. Who is just right to Pankaj?

Deepa
Lalit
Prakash
Priti

Q20.
Six friends are sitting in a circle and are facing the centre of the circle. Deepa is between Prakash and Pankaj. Priti is between Mukesh and Lalit. Prakash and Mukesh are opposite to each other. If Prakash and Priti interchanges their place, who will be sitting to the third left of Mukesh?

Deepa
Lalit
Prakash
Priti

Q21.

Sneha going with Kavin is asked by Thomas about the relationship between them. Sneha replied, "My paternal uncle and the uncle of his paternal uncle is the same". How are Sneha and Kavin related?

Grandmother and Grandson
Mother and son
Aunt and nephew
None of these

Q22.
Martha is the niece of George. George's mother is Elizabeth. Rachel is Elizabeth's mother. Rachel's husband is Andrew. Hannah is the mother-in-law of Andrew. How is Martha related to Andrew?

Great grandson's daughter
Andrew is Martha's father
Martha is Andrew's great-granddaughter
Grandniece

Q23.
If the word JUNGLE is coded as CJELSH, then the word FOREST is coded as

RQCDME
RQDQME
RQCMPD
RQCPMD

Q24.
In a certain code EQUITY is written as FSXMYE, then how is MARKET written in that code?

NCVOLZ
NDUOJZ
NCVOKZ
NCUOJZ

Q25.
Trudeau starts from his house and walks for 60 m towards the West. He then walks for 20 m northwards and after that 30 m towards his right. Finally, he walks for 40 m towards South to reach his office. How far and in which direction is his house from his office?

10./13, South-west

10./13, North-west

10./13, North-east

None of these

Q26.
A person walks 1 km eastwards and turns right and walks 1 km and turns right and walks a km again, and again turns right and moves a km ahead. What is the direction he is facing now?

West

East

North

South

Q27.
The question below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and Give answer

Who is sitting second to the left of Biden in a line in which all people are facing south? (Biden is not sitting at any extreme end)
Statement I: Carter is sitting to immediate left of Emhoff. There are 2 people between Arthur and Emhoff. Donald and Arthur are immediate neighbours. There are 2 people between Biden and Ford. Biden and Emhoff are not sitting together.
Statement II: Donald is sitting to immediate left of Arthur. There are 2 people between Arthur and Emhoff. Carter is sitting second to left of Ford

If the data in statement I alone are sufficient to answer the question

If the data in statement II alone are sufficient answer the question

If the data either in I or II alone are sufficient to answer the question

If the data in both the statements together are needed

Q28.
The question below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the questions. Read both the statements and give an answer.

How much did it cost the ITC Corporation to insure its factory from fire in 2018?
(A) It cost Rs.10,000 for fire insurance in 2017.
(B) The total amount the corporation spent on fire insurance in 2016, 2017 and 2018 was Rs.36,000.

if the question can be answered by one of the statements alone, but

cannot be answered by using the other statement alone.

if the question can be answered by using either statement alone.

if the question can be answered by using both the statements together,

but cannot be answered by using either statement alone.

if the question cannot be answered even by using both statements

together.

Q29.
Directions: In the following question, only one Conclusion is given and five statements are given as a), b), c), d) and e. From this, you have to take the statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given statement logically follows.

Conclusions:
Some windows are rings
No stone is a ring
Some windows are doors
Some doors are rings

a) Statements: Some stones are hammers. Some hammer is a ring. Some rings are doors. All doors are windows
b) Statements: All stones are hammers. No hammer is a ring. Some rings are doors. All doors are windows
c) Statements: All stones are hammers. No hammer is a ring. No rings are doors. No doors are windows
d) Statements: All stones are hammers. All hammer is a ring. Some rings are doors. All doors are windows
e) Statements: Some stones are hammers. No hammer is a ring. Some rings are doors. All doors are windows

(a)

(b)

(c)

(d)

(e)

Q30.
Directions: Read the conclusions and then decide which of the given conclusions logically follows from the given statements, disregarding commonly known facts.

Give answer:
(a)If only conclusion I follows
(b)If only conclusion II follows
(c)If either conclusion I or II follows
(d)If neither conclusion I nor II follows
(e) If both conclusions I and II follow

Statements:
Only a few Green are Blue
Only a few Blue are Orange
Only a few Orange are Red
Conclusions:
I) All Orange being Blue is a possibility
II) Some Orange Can never be Green is a possibility

A
B
C
D
E

Q31.
The following question consists of five figures marked A, B, C, D and E called the problem figures. Select a figure from among the Answer Figures which will continue the same series as established by the five Problem Figures.

Q32.
Choose the odd numeral pair/group in the following options.

8 – 16
18 – 34
39 – 71

56 – 84

Q33.
If the first half of the alphabet is written in reverse order and the remaining half written as it is, then which letter will be the middle letter between the 10th letter from left end and the 13th letter from the right end?

B
A
N
D

Q34.
In the following question, figures (i) and (ii) are two dice that are similar to each other in all respects. Figure (iii) is the view of both the dice when joined together. Answer the questions that follow based on the above information.

What is the sum values of the faces that are joined together, if the number on the face of the dice to the left in figure (iii) which is touching the other dice is 2?

5
2
7
12

Q35.
In the following sentence, a part of the sentence or the whole sentence is underlined. Beneath each sentence, four different ways of phrasing the underlined part are indicated. Choose the best alternative among the four options.

On 12th April 1961, Yuri Gagarin became a first person to enter the space.

became first person to enter the space
became the first person to enter space
became a first person to enter space
became the first person to enter the space

Q36.
Substitute the given sentence with one word :
Present opposing arguments or evidence

Criticise

Rebuff

Reprimand

Rebut

Q37.
Out of the four alternatives choose the one which can be substituted for the given words / sentence.

A person who leaves one political party, religious group, etc., to join one that has very different views.

Turncoat

Turndown

Turnabout

Turnout

Q38.
Identify the one which is opposite in meaning (antonym) to the question word and mark.

boorish

egoistic

urbane

tyric

visaged

Q39.
Fill in the blank with the most suitable option.

The answers to his questions were quite simple _____ those of his friend's.

than

in addition to

as opposed to

against

Q40.
Choose the best fit for the blanks from the options given. The "x" means that the blank requires no filling.

_____ word god also refers to a man _____ superior quality or exceptional beauty.

> The, of

> A, with

> The, with

> The, x

Q41.
Change from indirect speech to direct speech.

Raju asked Abhishek if he would change seats with him.

> Raju said to Abhishek, "Can you change seats with her?"

> Raju said to Abhishek, "Would you change seats with me?"

> Abhishek said to Raju, "Would you change seats with me?"

> Raju said to Abhishek, "Will you change seats with me?"

Q42.
Covert the sentence from Direct to Indirect Speech.

Saran said, "Why are you late? I waited for you so long".

> Saran asked why he was late. He told that he had waited for him for long.

> Saran said to him why he was late. He told that he had waited for him for long.

> Saran asked he was late. He told that he had waited for him for long.

> Saran asked why he was late. He said that he had waited for him for long.

Q43.
From the given options choose the one which best expresses the given sentence in active/passive voice:

People use Facebook all over the world.

> Facebook was used by people.

> Facebook was used all over the world.

Facebook is used all over the world.

Facebook is used by people.

Q44.
Choose the best option that expresses the sentence in active/passive voice:

Before Christmas, the shops are crowded with people making various purchases.

During Christmas people crowd the shops.

People crowd the shops before Christmas making various purchases.

People make purchases during Christmas.

The shops are crowded by people making purchases.

Q45.
Fill in the blank by selecting the appropriate word from the options:

You should help him in whatever he may need; _____, he's your brother.

in other words

incidentally

otherwise

after all

Q46.
In the following question, statements 1 and 6 are respectively the first and the last sentences of a paragraph and statements A, B, C and D come in between them. Rearrange A, B, C and D in such a way that they make a coherent paragraph together with statements 1 and 6. Select the correct order from the given choices.

1. It is often said that spiritualism is vanishing from our lives.

A. In the present age and in the age to come God will be the first casualty.

B. In the present age we have achieved only material progress.

C. Our past ages were characterized by spiritualism.

D. Progress through materialism will assume even greater intensity in the times to come.

6. Materialism without losing the tinges of morality seems to be a better choice.

BCDA

BADC

BDCA
BACD

Common Content:

The following bar graph represents the population classified according to the languages spoken over the world. Study the graph carefully and answer the questions that follow.

Q47.
If the world population is 543 crores, the Chinese language is spoken by about what percent of the total population?

14%
18%
22%
26%

Q48.
The ratio of total population speaking Japanese and German put together to that of Russian and Arabic put together is

1 : 3
1 : 2
1 : 4
2 : 3

Common Content:

<u>Read the passage and answer the following questions:</u>

Throughout history the powerful and rich have interfered in the lives and freedom of the poor, usually to tell them that being poor is their own fault because they do not exploit the right opportunities. At the same time, the rich have always labored greatly to ensure that the poor never get to raise their heads above the ground level. History is repeating itself. Despite our new and wonderful age of knowledge dissemination, innovations, and opportunities, the powerful have not changed in India or anywhere else. The rich nations of the world are telling the poor ones that their poverty is the result of their own corruption, greed, and bad governance. Meanwhile, the powerful in India are telling the poor that their destitution is the result of their illiteracy, ignorance, and narrow-minded beliefs in traditions. Neither the rich nations nor the rich people of India do more than deliver lectures. They insist that the poor must first deliver proof of honesty and sincere desire to use the money correctly before anything will be given. Of course, the decisions

about what is the correct use of money are in the hands of the rich. In any case, the rich use nearly 70 percent of the money given at any time to sell services to the poor. Western countries still make sure that as much as two-thirds of their aid is spent on consultants and materials from the West. The rich in India go a step further. It is still true that only six rupees out of every 100 spent by the government actually reach the villages. This year, reducing poverty is at the centre of the efforts of the World Bank and the United Nations. Several scholarly reports have been published. But none says that the poor deserve to be helped just because they are poor: They do not see poverty as an affliction. They see it as the consequence of inadequate actions by the poor themselves.

Q49.
When Western countries give aid to poor countries they ensure that

it is spent to benefit the poor.

the money is used in the best possible way.

a large part of it comes back to them.

None of the above

Q50.
The essence of several reports being published is

that the poor deserve to be helped because they are poor.

that poverty is to be eliminated.

that poverty is due- to the negligent attitude of the government and

the rich.

that poverty is the result of the inefficiency of the poor.

Section 2 - Technical MCQ
Section Summary

- No. of Questions: 40

- Duration: 40 min

Additional Instructions:

None

Q1.
What will be the output of the following pseudocode?

1
2
3
4

```
integer p,q,r
set p=15,q=3
r=p/q
q= p mod r
p=(p+ q+ r)/5
print p, q, and r
```

15 3 5

4 0 5

4 5 5

15 3 3

Q2.
What will be the output of the following pseudocode for a=7 and b=4?

```
integer funn(integer a, integer b)
if (a>1 && b>1)
return a+ funn(b - a, a-b)+b
end if
if(a)
return b
end if
return 10
end function funn()
```

27

12

14

19

Q3.
What will be the output of the following pseudocode for n=35?

```
                                          1
                                          2
                                          3
                                          4
                                          5
                                          6
                                          7
integer fun1(integer n)
if (n>5)
fun1(n-5)
print n
fun1(n/5)
end if
end function fun1()
```

| 10 15 20 25 30 6 35 7 |

| 20 25 30 |

| 10 15 20 25 30 |

| 35 7 |

Q4.
What will be the output of the following pseudocode?

```
                                          1
                                          2
                                          3
                                          4
                                          5
                                          6
                                          7
                                          8
                                          9
                                          10
integer x, y, z,j
set x=7, y=9
z= x+y
y = z mod x
x= x+y
y =x + z
for (each j from 3 to 4)
y= y-j
```

end for
print y

| 13 |
| 8 |
| 22 |
| 18 |

Q5.
What will be the output of the following pseudocode for a=4, b=2?

```
1
2
3
4
5
6
7
8
```

integer funn(integer a, integer b)
if (b>a && a>0)
return funn(b - 2, a - 2)
else
return b - a
end if
return 1
end function funn ()

| 5 |
| 0 |
| -4 |
| -2 |

Q6.
What will be the output for the following pseudocode?

```
1
2
3
4
```

```
integer a
set a=1
while(a<5)
a= a+2
end while
print a
```

| 4 |
| 3 |
| 2 |
| 5 |

Q7.
What will be the output of the following pseudocode for p=3 and q=7?

```
integer function funn(integer p, integer q)
integer r
set r=p
p=q
r=p
q=r
p=r
return p+q
end function funn ()
```

| 14 |
| 23 |
| 15 |
| 7 |

Q8.
What will be the output of the following pseudocode for x=45?

1
2
3
4
5
6
7

integer fun(integer x)
if((x MOD 6) MOD 2> 0)
return x/9
else
return fun(x/9)
end if
end function fun()

1

5

0

None of the mentioned options

Q9.
What will be the output of the following pseudocode for i=12?

1
2
3
4
5
6
7

integer fun (integer i)
if ((i/2)<(i MOD 2))
return i+1
else
return fun(fun(i -6))
end if
end function fun ()

12

-7

| 13 |
| -6 |

Q10.
What will be the output of the following pseudocode for a=9 and b=7?

1
2
3
4
5
6
7

integer funn(integer a, integer b)
integer c
set c=2
b= b MOD c
a= a MOD c
return a+b
end function funn( )

| 17 |
| 5 |
| -5 |
| 2 |

Q11.
What will be the sum of the port numbers of Telnet and Internet Relay Chat?

| 221 |
| 213 |
| 200 |
| 217 |

Q12.
Which of the following attacks treats the encryption algorithm as a black box?

| Brute-Force attacks |
| Analytical attacks |
| Implementation attacks |

Social Engineering attack

Q13.
Which of the following encryption algorithms can be encountered with Bit flipping attack?

Rivest Cipher 4

Rivest Cipher 5

Advanced Encryption Standard

Data Encryption Standard

Q14.
Which of the following cloud service provider does not provide application lifecycle management?

AWS

Azure

Google Cloud

All of the mentioned provides the service

Q15.
Which protocol is used to retrieve email messages from a server and delete them from the server once they have been downloaded?

POP

IMAP

SMTP

HTTP

Q16.
Which of the following is/are not supported by WAP?

IEEE802.1x based authentication

AES Encryption

Message integrity check

All of the mentioned options

Q17.
The HyperText Transfer Protocol (HTTP) allows clients to establish direct connections with servers using _____.

web-based connection

telnet

domain

linear connection

Q18.
Which of the following types of cryptography's strength depends on the number of key bits?

Asymmetric key cryptography

Hashing

Symmetric key cryptography

None of the mentioned options

Q19.
Which cryptographic protocol is used to prevent attacks on data integrity by TKIP?

Point to Point Protocol

Message Integrity Code

Secure Shell

Internet Key exchange

Q20.
Which of the following allows any business to reduce time delays and reduce energy consumption as well?

Data Center

Both Data Center and Cloud

Cloud

None of the mentioned options

Q21.
To align right the selected text, the shortcut key is _____.

Ctrl + L

Ctrl + R

Ctrl + J

Ctrl + U

Q22.

What is a set of unified design elements that provides a look for your document by using color, fonts and graphics?

Highlight

Format painter

Line spacing

Theme

Q23.
Which of the following options is used to display information such a title, page number of the document?

Auto Correct

Header and Footer

Thesaurus

Insert Table

Q24.
_____ are advanced features that can speed up editing or formatting you may perform often in a Word document.

Comment

Track changes

Ribbon

Macros

Q25.
A detailed written description of the programming cycle and the program, along with the test results and a printout of the program is called _____

Spreadsheets

Reporting

Output

Documentation

Q26.
What is the default PowerPoint standard layout?

Blank

Title slide

Title only

Comparison

Q27.
The PowerPoint view that displays only text (title and bullets) is _____.

Outline view

Notes page view

Slide sorter

Slide show

Q28.
The slide that is used to introduce a topic and set the tone for the presentation is called the _____.

Title slide

Bullet slide

Table slide

Graph slide

Q29.
Which is not the valid edition of MS PowerPoint?

MS PowerPoint 2003

MS PowerPoint 1995

MS PowerPoint 2010

MS PowerPoint 2007

Q30.
In PowerPoint, the header and footer buttons can be found on the insert tab in what group?

Tables group

Text group

Object group

Illustrations group

Q31.
 How do you wrap the text in a cell?

Format - cells - font

Format - cells - protection

Format - cells - number

Format - cells - alignment

Q32.
Which of the following keyboard shortcut can be used for creating a chart from the selected cells?
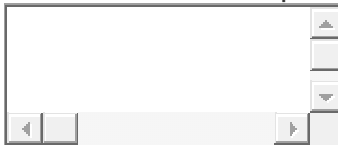
F11

F10

F4

F2

Q33.
What will be the output of the following code?

```
1
2
3
4
5
6
7
```
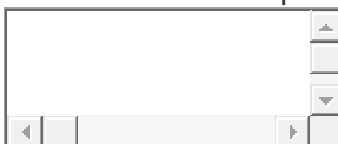
Function m()
print hi
End Function
Function main()
m();
End main

hi

Compile Time Error

Nothing

Varies

Q34.
What will be the output of the following pseudocode?

```
Integer array1[6], p,j,q
Set p=3
Set array1[6]={ 3,6,10,12,23,33}
for (each j from 0 to 5)
    if((array1[j] MOD p) EQUALS 0)
        p=array1[j]-p*3
    end if
q=p+array1[j]-3
end for
Print q
```

54

64

44

34

Q35.

What will be the output of the following pseudo-code for a=2?

```
integer fun(integer a)
if(a>0)
return a+ fun(a-1)
else
return 0
end if
```

6

5

3
4

Q36.
What will be the output of the following pseudocode?

1
2
3
4
5
6
7
8
9

Integer f, k, j
Set f= 9, k= 55
j= f + k / 8
if(j + 1 >= 8)
f = f + 1
Else
K = k + 1
End if
Print f + k

65
67
78
66

Q37.
What will be the output of the following pseudo-code for a=9 and b=2?

1
2
3
4
5

Integer funn(Integer a, Integer b)
   if (b<a)
      return a+funn(b+1,a+1)+funn(b+2,a+2)

End if

return b

37
27
41
30

Q38.

What will be the output of the following pseudocode?

	1
	2
	3
	4
	5
	6
	7
	8
	9

Integer p,q,r

Set p=1, q=3, r=8

p=3^r

if((r^3)<8 && (4^6)<r)

  q=r^q

Else

  p=(p+q)+r

End if

Print p+q+r

6530
6583
6527
6524

Q39.

What will be the output of the following pseudocode?

| | 1 |
| | 2 |

Integer p,q,r
Set p=5, q=3, r=8
for(each r from 4 to 7)
  q=9+r
  if((4+r-p)>(p+q))
   p=(q+r)+r
  Else
   q=(r^q)^p
  End if
End for
Print p+q

27
22
23
29

Q40.
What will be the output of the following pseudocode?

Integer a, b, c
set a=5, b= 11, c= 7
for (each c from 2 to 3)
b = 9 + a
end for
print a + b

24
20

Section 3 - Coding
Section Summary

- No. of Questions: 2
- Duration: 45 min
  Additional Instructions:

  None

  Q1.
  ## Problem Statement

  Ahmed likes to travel a lot. Every day Ahmed tries to visit as many cities as possible. Recently he had quite a few trips to great Tokyo for learning various recipes. Tokyo had N cities numbered from 1 to N. People in Tokyo are very friendly, the friendliness of ith city is given by F_i. Before starting each trip, Ahmed's initial enjoyment is 1 unit. Whenever he visits a city with friendliness F_i, his enjoyment gets multiplied by F_i units. City 1 is the home city of Ahmed. He starts each trip from his home city. Before starting a trip, he chooses a parameter R which denotes that he will start from city 1, and go to city 1 + R, then to 1 + 2 * R, then to 1 + 3 * R, till 1 + i * R such that i is the largest integer satisfying 1 + i * R ≤ N.

  Now, Ahmed wants you to help him recreate his visit to the cities. Specifically, he will ask you Q queries, each of which can be of the following two types.

1. p f: friendliness of pth city changes to f, i.e. $F_p = f$
2. R: Find out the total enjoyment Ahmed will have during this trip. As Ahmed does not like big numbers, he just asks you to output two things, the first digit of the enjoyment and the value of enjoyment modulo $10^9 + 7$.
   Input Format
   The first line of input contains a single integer N, denoting the number of cities in Tokyo.
   The second line of the input contains N space-separated integer - $F_1, F_2, ..., F_N$, denoting the friendliness of the cities in order from 1 to N.
   The next line contains an integer Q, denoting the number of queries.
   For each of the next Q queries, each line corresponds to one of the two types of query. First, there will be an integer denoting the type of the query, followed by the actual query. For query of type 1, there will be three space-separated integers "1 p f" as defined above. For query of type 2, there will be two space-separated integers "2 R ", as defined above.
   Output Format
   For each query of type 2, output two space-separated integers, the first digit of Ahmed's enjoyment in this trip followed by the value of enjoyment modulo $10^9 + 7$.

   Refer to the sample inputs and outputs for a better understanding.
   Constraints
   $1 ≤ N, Q ≤ 10^5$

$1 \le F_i \le 10^9$
$1 \le f \le 10^9$
$1 \le p \le N$
$1 \le R \le N$

Sample Input Sample Output

```
5
1 2 3 4 5
3
2 1
1 3 10
2 2
1 120
5 50
```

Sample Input Sample Output

```
6
1 2 3 4 5 6
4
2 2
1 4 7
2 3
1 5 8
1 15
7 7
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb
Q2.
Problem Statement

Mike had been provided with T integers and an integer S by his professor; he needs to identify the probability of getting a set of three integers the same as S from the T integers.
Mike is poor at interpreting floating-point numbers. Guide him to identify the probability based on a fraction and cut it down to its lowest terms.
Input Format
The first line contains two space-separated integers - T and S, which represent the total number of integers Mike had, and the value S whose S-same-triplet was required.
Output Format
The output displays the probability of finding an S-equal triplet in terms of the lowest fraction.
For example, if the answer is 4/8, you must print 1/2, which is the lowest reduced fraction of 4/8.

Refer to the sample inputs and outputs for a better understanding.
Constraints
- $1 \le T \le 10^6$
- $1 \le Numbers \le 10^9$
- $1 \le S \le 10^9$
Sample Input Sample Output

```
5 4
1 4 4 4 1
1/10
```
Sample Input Sample Output
```
16 2
1 2 2 3 1 2 2 3 1 2 2 3 1 2 2 3
1/10
```
Time Limit: - ms Memory Limit: - kb Code Size: - kb

Answer Key & Solution

Section 1 - Cognitive
Q1
39157

Solution
Only 2nd option satisfies this.
39*57-1 =2222
Q2
72

Solution
2X+X+(2X/3) = 264
(6X+3X+2X)/3 = 264
11X/3 = 264
X= (264×3)/11 = 72
Q3
12000

Solution
The winning candidate gets 66 % of the votes cast and the losing candidate gets (100 - 66 = 34%) of the votes casted.
Thus , the gap between the two is (66 - 34 = 32%) of the votes cast = 3072 votes .
Thus, the total votes cast = 3072/32×100=9600
Since, this is 80 % of the total number of voters on the voting list,
Hence, the total number of voters on the voting list = 9600/80×100=12000.
Q4
21.6%

Solution
Total money = Rs.[600*(25/100)+1200*(50/100)]= Rs. 750.

25 paise coins removed = Rs. (600*12/100) = 72.

50 paise coins removed = Rs. (1200*24/100)= 288.

Money removed =Rs.(72*25/100+288*50/100) = Rs.162.

Required percentage = (162/750*100)% = 21.6 %.

Q5
Rs.360

Solution

Q6
10%

Solution
CI of 3 yrs = Rs 5324
P + CI of 2 yrs = Rs 4840
subtracting (2) from (1), we get
CI of 3rd year =5324 – 4840 =Rs 484
Thus, the CI calculated in the third year which is Rs 484 is basically the amount of interest on
the amount generated after 2 years which is Rs 4840
r =484 × 100/4840 × 1 =10%
Q7
4 kg

Solution
In the first mixture water = (10/100 × 20) = 2 kg and spirit = 18 kg.

In the second mixture 75 kg spirit is contained in a mixture of 100 kg.

So 18 kg spirit is contained in a mixture of (100/75 × 18) = 24 kg.

So, water to be added = (24 – 20) kg = 4 kg.
 Spirit water

Initial ratio 9: 1

New ratio 3 : 1

Since Spirit remains same 3 parts equal to 18

So one part is 6So 4 Kg to be added
Q8
1 : 2

Solution
     Milk   :   Water
Vessel A   3   :   2
Vessel B   7   :   3
Now using alligation,
Vessel 1   :   Vessel 2
 3/5   7/10
             2/3

(7/10-2/3)=1/30   (2/3-3/5)=1/15
  1   :   2

Q9
Rs. 200.20

Solution
For, 500 workers, the average wage is 200.

Total wages = 200×500=100000

correct read 90+210=300 misread 170+30=200

+ Rs.100 is the difference between correct wages and misread wages.
So, we will add this in 1,00,000 and then divide it by 500
We find average wages = 100100/500 = **Rs.200.20**

Q10
6 men

Solution
Wage per day of a woman = 19872/(36*46) = 12 Rs/day
Wage per day of a man = 5 * 12 = 60 Rs/day
No. of men needed for 42 days for a total amount of Rs.15120 = 15120/(42*60) = 6 men

Q11
15 km

Solution
Let the distance = x
Here, the difference in time
= 20 - 5 = 15 min
= 15/60= 1/4 h
Speed during next journey = 15 + 5 = 20 km/h
According to the question,
(x/15) − (x/20) = 1/4
(4x−3x)/60 = 1/4
x = 60/4 = 15
x = 15 km

Q12
50 min

Solution
Time taken for 5 km = 1/2 hour (when he doesn't stop).
The time for which he stops = 5 × 4
(number of Stops) = 20 min.
Hence total time = 30 + 20 = 50 min.

Q13
1024

Solution

For each ring, there are 4 ways of placing it in a finger.

Hence, 4 * 4 * 4* 4 * 4 = 4^5

=1024

Q14

120

Solution

Since red balls cannot be taken thus we can select 3 balls out of 6 white and 4 blue balls.

Required number of, selections = $10C_3$ = 120 ways.

Q15

1/6

Solution

Number of ways in which the three letters can be put in three different envelopes = 3! = 6 ways.

[It is same as arranging three things in three different positions.]

Number of ways in which all the letters are sent to the correct address = 1 way [There is only one way in which all three letters are inserted in correct envelopes]

∴ Probability of sending the letters to correct addresses = 1/6.

Q16

1733

Solution

Let the Fan PRICE = X

25% of X - 20%(3000-X) = 6% of 3000

= 25/100 * X - 20/100 * (3000-X) = 6/100 * 3000

= X/4 - 1/5 (3000-X) = 180

=> solving this, we get X = 1733

Q17

73730

Solution

101 * 730 = 73730

Q18

86

Solution

Total of 21 boys= 21*64= 1344

now after the teacher is added, average becomes 22.

Total of 21 boys+ Teacher= 22*65= 1430

Teacher's weight = 1430-1344= 86
Q19
Deepa

Solution

Hence, Deepa is sitting just right to Pankaj.
Q20
Priti

Solution

Hence, Priti is sitting to the third left of Mukesh
Q21
Aunt and nephew

Solution
The woman's paternal uncle and the uncle of the boy's paternal uncle is the same. (Paternal uncle of the boy)'s parent is the sibling of the paternal uncle of the woman. It implies that the woman's mother, the woman's paternal uncle and the boy's paternal uncle's parents are siblings. So the woman and the paternal uncle of the boy are cousins. So are the woman and the mother of the boy. As they are cousins, the boy is the woman's nephew and the woman is the boy's aunt.
Q22
Martha is Andrew's great-granddaughter

Solution

Martha is the granddaughter of Elizabeth.
Andrew is the father of Elizabeth.
Therefore, Martha is the great-granddaughter of Andrew.
Q23
RQCPMD

Solution
The code/pattern used in JUNGLE is : Subtracting 2 from the letter and writing it in the reverse order

ie.., J - 2 = H , U-2 = S

Applying this pattern for the word FOREST, i.e.,

F - 2 = D
O - 2 = M

we get, RQCPMD

Q24
NCUOJZ

Solution
E (+1)→ F
Q(+2)→ S
U (+3)→ X
I (+4)→ M
T (+5)→ Y
Y(+6)→ E

Similarly,
M (+1)→ N
A (+2)→ C
R (+3)→ U
K (+4)→ O
E (+5)→ J
T (+6)→ Z
Q25
10√13, North-east

Solution

$AB^2 = OB^2 + OA^2$
$AB = 10\sqrt{13}$ m
His house is towards northeast with respect to his office.
Q26
North

Solution

Q27
 If the data either in I or II alone are sufficient to answer the question

Solution
From I, arrangement is D A B C E F
From II also, arrangement is D A B C E F
Q28
 if the question cannot be answered even by using both statements together.

Solution
Using statements (A) and (B) together, it is only possible to determine the total amount paid for fire insurance in 2016 and 2018.
Since no relationship is given between the amounts paid in 2016 and 2018, there is not enough information to determine the cost in 2018.
Q29
(b)

Solution

Q30
E

Solution
Some possibilities:

So I and II follows.
Q31

Solution
A has 1 shaded square.
B has the same square shaded + 2 others
C has the squares shaded in B - 1 of them
D has the squares shaded in C + 2 others
E has the squares shaded in D - 1 of them
The next figure will have the squares shaded in E + 2 other squares shaded. The only options which fits this criteria is 2.
Q32
56 – 84

Solution
8 – 16(difference is 8)
18 – 34(difference is 16)
39 – 71(difference is 32)
56 – 84(difference is 28) Difference is a multiple of 8 but here it is different.
Q33
B

Solution
When the first half of the English alphabet is written in reverse order, the alphabet will look like:M L K J I H G F E D C B A N O P Q R S T U V W X Y Z

10th letter from left end is D, and 13th letter from right end is N. The middle letter between D and N is B.

Q34

5

Solution

By comparing figure (ii) with the figure to the right of figure (iii), we understand that 2 is opposite 4, By observation we know that 3 and 6 are adjacent to five.Hence, one is opposite five and three is opposite 6. Hence the sum of values on faced joined together is 3 + 2 = 5.

Q35

became the first person to enter space

Solution

Correct answer - became the first person to enter space

Ordinal numbers such as first, second, third, etc. always take the definite article **the**.

Never, ever use the phrase "the space" when referring to outer space, unless you're using it to specify a particular region of outer space, like "the space between galaxies".

Q36

Rebut

Solution

Rebut means to provide some evidence or argument that refutes or opposes.

Q37

Turncoat

Solution

Turncoat-a person who deserts one party or cause in order to join an opposing one.

Q38

urbane

Solution

'Boorish' is ill-mannered. 'Tyro' means student. 'Visage means features. 'Urbane ' means polite or refined.

Q39

as opposed to

Solution

Answer: Option (as opposed to)

The given sentence is a <u>comparison</u> between his answers and his friend's answers. Thus, the word in the blank should convey that a comparison is being made.

Options (in addition to**) and (**against**)** -- 'In addition to' and 'against' are never words used to convey comparisons.

Option (than**)** -- 'Than' is used in comparison sentences whenever the word just before it is of the <u>second degree of comparison</u>.

<u>E.g. sentence</u>: He is taller than me.

The word just before the blank in the given question is 'simple', which is NOT of the second degree of comparison.

'As opposed to' means 'in contrast with'. It is the most accurate fit for the blank.
Q40
The, of

Solution
First blank – 'Word' is definite since specific information has been provided to define it. That piece of specific information is what the word actually is ("God"). Thus the first blank must take the definite article 'the'. This eliminates option b.
Second blank: With vs. Of – 'With' is used to refer to indicate the meaning of 'in possession of'.E.g.: She came to me with good news. 'Of' is used to indicate characteristics/qualities.E.g.: He is a man of courage. In the given sentence, the talk is about qualities ("superior quality or exceptional beauty").

Thus 'of' is the appropriate preposition to be used.
Q41
Raju said to Abhishek, "Will you change seats with me?"

Solution
The given sentence is in indirect speech. To convert it into a direct speech,
Raju **asked** Manish if **he would** change seats with him
Would to be changed to **will** and **He** to be changed to **you**

Rishi said to Manish "Will you change seats with me?"
Q42
Saran asked why he was late. He told that he had waited for him for long.

Solution
Reported Speech: Saran asked why he was late. He told that he had waited for him so long.
Q43
Facebook is used all over the world.

Solution
The given sentence is in present simple tense.
When the voice is changed "use" becomes "used"
"Facebook" is taken as a subject in passive voice. The right answer is "Facebook is used all over the world."
Q44
People crowd the shops before Christmas making various purchases.

Solution
Given sentence is in passive voice. "The shops are crowded by people making purchases." is in passive voice so it can be ruled out.
"During Christmas people crowd the shops." & "People make purchases during Christmas." is not in context with the question.

"People crowd the shops before Christmas making various purchases." correctly expresses the idea in active voice.

Q45

after all

Solution

after all - in spite of any indications

after all suits the meaning of the sentence.

Q46

BDCA

Solution

The answer choices clearly indicate that 'B' has to follow the first statement. Since, 'B' talks of 'material progress', statement 'D' should come after 'B'. 'C' mentions 'past ages' which is followed by 'A" which mentions 'the present age'. BDCA is the right answer.

Q47.

22%

Solution

Total population = 543 crores

population speak Chinese =120 crores

percentage of population speak Chinese = (120/543) * 100 = 22%

Q48.

1 : 2

Solution

Total population speaking Japanese and German Together = 13+12 = 25

Total population speaking Russian and Arabic Together = 29+21 = 50

Ratio = 25 : 50 = 1 : 2

Q49.

a large part of it comes back to them.

Solution

In the second para the sentence, "Western countries from the West" make the option "a large part of it comes back to them." as correct

Q50.

that poverty is the result of the inefficiency of the poor.

Solution

The last sentence of the first para and the last sentence of the second para say that poverty is the result of the inefficiency of the poor. The right answer is "that poverty is the result of the inefficiency of the poor"

Section 2 - Technical MCQ

Q1

4 0 5

Solution

Initially p=15,q=3

r=15/3 = > **r=5**

q= 15 mod 5 =>**q= 0**

p=(15+ 0+ 5)/5 = 20/5 =>**p=4**

Q2

14

Solution

In funn(7,4) => recursive function called 7+fun(-3,3)+4;

In fun(-3,3) => return 3.

So in funn(7,4) => 7+3+4 => 14 gets printed.

Q3

10 15 20 25 30 6 35 7

Solution

No Solution

Q4

18

Solution

Initially x=7, y=9

z= 7+9 = 16

y = 16 mod 7 => 2

x= 7+2 => 9

y =9+16 => 25

Iteration 1:

y=25-3 => 22

Iteration 2:

y=22-4 => 18

Q5

-2

Solution

Initially a=4, b=2, if condition gets failed and return 2-4 (-2) gets printed.

Q6

5

Solution

integer a=1.Iteration 1: 1<5 (TRUE)a=3, Iteration 2: 3<5 (TRUE) a=5 , Iteration 3: 5<5 (FALSE) So, 5 gets printed.

Q7

14

Solution
Initially p=3, q=7
r=3,p=7,r=7,q=7,p=7. As a result, 7+7 = 14 gets printed.
Q8
5

Solution
x=45 , 45 MOD 6 => 3 MOD 2 =1.
1>0 (True), return (45/9) i.e 5

Q9
-7

Solution
Here nested recursive call is done. For i=12 ,
In fun(12) , 6<0 (False) so fun(fun(6)) is called.
In fun(6), 3<0 (False) so fun(fun(0)) is called
In fun(0), 0<0 (Fasle) so fun (fun(-6)) is called.
fun(-6), -3<0 (True), it returns -6+1 (-5) to previous function call. So fun(-6) replaced with -
5. As a result fun(-5) is called. This process repeated until fun(12).
So, Each function call and the return values are:
fun(12)=6,
fun(6)=0,
fun(0)=-6,
fun(-6)=-5,
fun(-5)=-4,
fun(-4)=-3,
fun(-3)=-9,
fun(-9)=-8,
fun(-8)=-7 . Finally -7 gets printed.
Q10
2

Solution
Initially c=2, a=9, b = 7, b= 7 % 2=> b=1 , a= 9%2 => 1. As a result, 2 gets printed.
Q11
217

Solution

No Solution
Q12
Brute-Force attacks

Solution

No Solution
Q13
Rivest Cipher 4

Solution

No Solution
Q14
All of the mentioned provides the service

Solution

No Solution
Q15
POP

Solution

No Solution
Q16
IEEE802.1x based authentication

Solution

No Solution
Q17
telnet

Solution

No Solution
Q18
Asymmetric key cryptography

Solution

No Solution
Q19
Message Integrity Code

Solution

No Solution
Q20
Both Data Center and Cloud

Solution

No Solution
Q21
Ctrl + R

Solution

No Solution
Q22
Theme

Solution

No Solution
Q23
 Header and Footer

Solution

No Solution
Q24
Macros

Solution

No Solution
Q25
Documentation

Solution

No Solution
Q26
Title slide

Solution

No Solution
Q27
Outline view

Solution

No Solution
Q28
Title slide

Solution

No Solution
Q29
MS PowerPoint 1995

Solution

No Solution
Q30
Text group

Solution

No Solution
Q31
Format - cells - alignment

Solution

No Solution
Q32
F11

Solution

No Solution
Q33
hi

Solution
main calls function m()

function m() print hi

ANS : hi
Q34
54

Solution
If block executes only when j=0 and 1.
When j=0, updated value of p=-6 ,q= -6
When j=1, updated value of p=-24 ,q= 27
When j=2, updated value of p=24 ,q= 31
When j=3, updated value of p=24 ,q= 33
When j=4, updated value of p=24 ,q= 44
When j=5, updated value of p=24 ,q= 54 and terminates the loop. So output is 54.
Q35
3

Solution

No Solution
Q36
65

Solution
Initially f= 9, k= 55.Apply VBODMAS rule to evaluate the expression.
j value evaluated and set as 16. If block gets executed and set f as 10.
As a result it prints **65**(10 + 55= 65).
Q37
30

Solution

No Solution
Q38
6583

Solution

No Solution
Q39
23

Solution
For all the iteration else block only gets executed.
When r=4,q=(4^3)^5=>12
When r=5,q=14

When r=6,q=12
When r=7,q=18 and loop terminates. So 5+18 => 23 gets printed.
Q40
19

Solution

No Solution
Section 3 - Coding

Q1Test CaseInputOutput

```
12
1  3  5  6  7  8  2  1  5  7  3  2
6
2  4
1  4  7
2  6
1  5  6
2  5
1  8  11
3  35
2  2
2  24
```

Weightage - 10InputOutput

```
15
1  2  3  4  5  6  1  2  3  4  5  6  7  8  2
9
2  6
1  4  7
2  8
1  5  9
2  9
1  6  10
2  6
1  4  9
2  9
7  7
3  3
4  4
7  7
4  4
```

Weightage - 10InputOutput

```
25
```

```
2 2 3 4 5 6 7 8 9 2 3 4 5 6 7 9 10 11 12 13 14 15 17 13 14
14
2 7
2 9
1 2 6
2 6
2 11
1 4 8
2 5
2 8
2 9
1 2 4
2 5
2 10
1 4 6
2 13
1 1680
4 48
1 11760
1 136
4 4536
2 2520
4 48
4 4536
8 84
1 12
```

Weightage - 20InputOutput

```
32
2 3 4 5 6 7 8 9 11 12 13 15 16 17 18 2 3 4 5 6 7 8 9 2 3 4 5 1 2 3 4 5
18
1 5 7
2 8
1 6 9
2 9
1 6 8
2 9
2 6
1 8 9
2 10
1 5 8
1 5 10
2 10
1 6 10
2 17
2 10
```

```
1 18 10
2 5
2 7
1 198
1 120
1 120
1 15360
7 728
7 728
8 8
7 728
5 58240
5 5184
```

Weightage - 20InputOutput
```
50
2 3 4 5 6 7 8 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 12 2 3 4 5
6 7 8 10 12 13 14 15 16 18 2 3 4 5 6 7 8 12
25
1 3 4
2 5
2 7
2 8
2 9
1 3 7
2 6
2 8
2 9
2 11
2 13
2 15
1 8 10
1 11 10
1 12 20
1 20 25
1 21 26
2 9
2 10
2 15
2 17
2 18
2 19
1 10 34
2 15
4 429004800
1 115200
```

```
5 552960
5 51840
1 15925248
5 552960
5 51840
4 4480
4 420
3 360
5 51840
3 33280
3 360
1 176
2 288
7 700
3 360
```

Weightage - 40Sample InputSample Output

```
5
1 2 3 4 5
3
2 1
1 3 10
2 2
1 120
5 50
```

Sample InputSample Output

```
6
1 2 3 4 5 6
4
2 2
1 4 7
2 3
1 5 8
1 15
7 7
```

Solution

```cpp
#include <bits/stdc++.h>

#define ll long long
#define pb push_back
#define fr first
#define sc second

using namespace std;
```

```cpp
const int N = 1e5 + 7;
const int mod = 1e9 + 7;
const double eps = 0.00000000001;

int n;
int a[N];
vector<int> del[N];
int fl;
pair<double, ll>ans[N];
int leader[N];

int bin_pow(int a, int n)
{
            if (n == 1)return a;
            if (n & 1)
            {
                    return (bin_pow(a, n - 1) * 1LL * a) % mod;
            }
            int b = bin_pow(a, n / 2);

            return (b * 1LL * b) % mod;
}
void push(int q)
{
            ans[q].fr -= (log10(leader[q] + eps));
            ans[q].fr += (log10(fl + eps));
            ans[q].sc *= bin_pow(leader[q], mod - 2);
            ans[q].sc %= mod;
            ans[q].sc *= fl;
            ans[q].sc %= mod;
            leader[q] = fl;
}
int get(int x)
{
            push(x);
            return pow(10LL, ans[x].fr - ((ll)ans[x].fr) * 1.0);
}
void update(int pos, ll x)
{
            for (int i = 0; i < del[pos].size(); i++)
            {
                    int q = del[pos][i];
                    push(q);
                    ans[q].fr -= (log10(a[pos] + eps));
                    ans[q].fr += (log10(x + eps));
                    ans[q].sc *= bin_pow(a[pos], mod - 2);
                    ans[q].sc %= mod;
                    ans[q].sc *= x;
                    ans[q].sc %= mod;
            }
            a[pos] = x;
}
main()
{
            cin >> n;
            for (int i = 1; i <= n; i++)
            {
                    scanf("%d", &a[i]);
            }
```

```
            for (int i = 1; i <= n; i++)
            {
                    ans[i].sc = 1;
                    leader[i] = a[1];
                    for (int j = 1; j <= n; j += i)
                    {
                            del[j].pb(i);
                            ans[i].fr += (log10(a[j] + eps));
                            ans[i].sc *= a[j];
                            ans[i].sc %= mod;
                    }
            }
            fl = a[1];
            int q;
            cin >> q;

            while (q--)
            {
                    int ty, pos, x;

                    scanf("%d", &ty);

                    if (ty == 1)
                    {
                            scanf("%d%d", &pos, &x);
                            if (pos == 1)
                            {
                                    fl = x;
                                    continue;
                            }
                            update(pos, x);
                    }
                    else
                    {
                            scanf("%d", &pos);
                            printf("%d ", get(pos));
                            printf("%d\n", ans[pos].sc);
                    }
            }
}
```

Q2Test CaseInputOutput

```
40 2
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4 5 8
7/1235
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Weightage - 10InputOutput

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1/506
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Weightage - 20InputOutput

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64853 81410 2765 65639
1/111895
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Weightage - 20InputOutput

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1/11708780

Weightage - 25InputOutput

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74638 28706 65756 37704 18064 76530 84752 71010 62004 26993 62961 1150
65047 2099 52660 82139 79232 59233 62138 24286 63137 52581 9541 21743
45787 87269 33207 99609 3714 72859 25594 11967 82015 13150 69868 7936
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16033 80100 28622 51198 50816 4454 47968 89522 40869 8695 73078 42977
17447 12874 63653 15253 50169 75385 23032 58993 98735 60609 25532 18773
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1257 60858 50189 49049 63639 81344 1369 64727 63064 71461 29477 51163
82716 82824 55269 80179 31300 77321 88209 2691 49097 88770 53435 38987
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29957 63527 32122 5535 70971 10777 84095 31150 46182 61254 81310 14150
76225 29460 71840 10670 12088 29642 26360 43 3573 23524 33798 19966 38513
30342 77460 31607 46819 33920 69490 20963 89376 32808 79668 72680 62613
72359 26553 46581 23271 9654 58370 27314 61684 66642 63064 50170 54613
10936 7169 73160 19634 62636 38940 95661 43026 92014 67040 24004 20160
76528 90084 11063 620 30949 93392 59588 44225 5 55916 24731 61832 99967
52458 72779 1961 29625 7520 18944 2168 71043 2105 85923 93575 51282 73554
26377 28022 96220 90621 33140 91684 58903 25830 31925 56754 35824 87964
91089 74158 36151 77124 50576 8698 77806 59046 86188 27393 49891 39333
16175 29796 11832 52845 27922 39942 46258 43565 1232 88065 36049 13815
43940 26025 76534 87209 13847 8117 57555 5915 24930 62907 46371 47084
98076 77406 2966 98583 85415 30627 84058 25830 12824 31740 56429 70726
95023 85956 53656 39740 66400 67842 86411 37606 99139 10167 54194 53604
93799 1463 45096 52892 96390 17895 81799 37449 74499 53260 10326 65654
6403 79350 9743 72632 93438 60373 29800 9597 28907 60922 71641 41713 98302
51931 3545 52435 72680 27296 19565 36277 95504 88750 66941 26109 97354
13051 21268 14291 94759 89247 83675 9914 50508 48318 31104 90514 21439
80926 99050 59986 87056 15671 98034 22105 45359 19642 71398 32307 6857
55227 57207 50165 63793 32547 56809 21021 6166 98165 53802 87228 85226
92173 85620 99058 36648 42594 91288 83172 35467 19216 85197 39826 32166
1168 25146 27493 49000 64885 91642 34659 27153 45427 93452 65758 43286
5279 47633 73139 74181 23515 69900 51746 33890 46965 68002 77207 85053
5340 81525 39335 59156 132 38493 90080 7653 75374 89026 20340 66020 81952
70761 54167 1181 7510 46911 53499 24918 58137 51616 3401 34269 17172 38727
92893 18574 81600 76448 23939 87152 50448 82566 96552 34765 23844 38580

60959 14238 91498 46973 42240 11617 99712 35415 3966 97691 52455 54944
62968 66486 32051 95384 5306 3186 21064 3019 90127 5467 65051 82836 76794
86664 81117 88726 13173 32272 96545 17286 17819 96854 37485 40010 58739
85950 13627 89998 31807 86570 53679 99290 60598 31579 43913 66851 13681
1094 45598 79803 61095 64570 16873 48456 33337 91528 15248 68630 71937
68209 53000 23328 83816 36365 52077 33110 55877 7904 17320 5649 81587
86179 23766 66059 81190 95004 41237 66803 97034 97077 483 737 56144 14147
69795 53474 50220 74107 60459 38424 92967 14392 30395 51089 13143 74493
65457 28147 36745 76060 73424 83282 34271 30185 63283 12639 1693 11941
90513 70600 26394 87926 88091 88431 65142 50010 42016 46196 82515 77279
26339 27975 22379 24064 68011 5660 8169 94273 90418 22018 49499 13471
85167 17773 36241 28729 9924 14541 57624 62236 84022 39536 34713 11310
60445 38143 7631 23023 24716 2748 99952 86403 95013 2720 53693 75154 44827
1717 22161 62405 96672 32992 25294 12798 94088 10642 41868 7857 72703
78094 89297 33049 1149 40921 21191 64511 70342 34800 3345 99424 66698
92910 63629 19274 82597 86929 9792 85388 14665 72874 75682 99726 95013
74112 89440 78533 4440 88702 71040 96172 91475 51534 85938 50028 86475
12428 68643 62641 22204 97294 28356 14842 10610 57266 2214 14509 38967
43961 59530 96129 12148 38186 24550 25891 68376 29481 23284 76766 61043
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48422 56147 18961 98266 24325 52027 66506 45352 12800 62981 74691 23686
84448 60315 53025 69912 23810 69723 63465 23423 84702 56385 24722 96863
61307 87351 74952 85942 5195 47202 2335 3500 91744 59696 43994 85584 29695
32589 21223 8105 31178 77593 89086 14347 79629 64533 20103 43776 97656
58067 59918 915 8055 59815 66228 87467 8645 28398 22300 84184 96596 97035
88485 8858 90283 65226 31538 86668 76443 50506 34072 60612 68694 23195
41596 16651 91181 64782 63404 600 47671 23561 85713 17947 90012 52928
63842 37174 93388 92533 26490 47578 99272 63419 40638 73403 92807 20233
37566 34155 83271 90854 35465 40437 36976 44075 69075 9309 37936 98514
35141 83827 1303 41456 69541 67063 67252 8533 38782 56037 30508 67854
42255 51936 63834 26850 35626 88475 29081 41182 81522 25153 7313 20879
52081 33967 89919 82958 81516 18050 95544 55920 44999 2039 98129 36865
11543 54285 37623 68191 81204 7350 48940 39350 76555 7154 29166 99299
17901 2665 17937 52585 62411 89324 43149 30187 99615 22024 11029 2358
85787 5733 68531 97209 90974 59447 86741 26441 72769 42997 70245 98883
4251 89611 57722 35640 77426 67714 43808 96038 72033 32467 86591 99339
33729 49747 93126 15389 62823 78016 95514 37366 84651 39216 72189 89505
42749 5687 94752 51345 94219 35340 70449 93648 91906 58668 36604 45867
52381 67480 19395 14339 85414 35752 32200 21757 21959 83259 35793 75142
50220 61479 71347 86208 66040 22575 22563 42694 11960 53126 38164 38005
77148 57043 50659 71288 68357 29335 75309 38139 71775 98808 66251 12823
97426 78695 86186 81616 74638 28706 65756 37704 18064 76530 84752 71010
62004 26993 62961 1150 65047 2099 52660 82139 79232 59233 62138 24286
63137 52581 9541 21743 45787 87269 33207 99609 3714 72859 25594 11967
82015 13150 69868 7936 38152 91517 11511 34506 49727 61070 38158 38283
3570 72818 11967 92802 16033 80100 28622 51198 50816 4454 47968 89522

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40869 8695 73078 42977 17447 12874 63653 15253 50169 75385 23032 58993
98735 60609 25532 18773 91440 98577 42707 1965 92331 22457 2902 56565
95238 46213 9541 77311 66036 1849 44590 83743 93450 69032 64350 28341
56884 25774 21536 19133 64586 1257 60858 50189 49049 63639 81344 1369
64727 63064 71461 29477 51163 82716 82824 55269 80179 31300 77321 88209
2691 49097 88770 53435 38987 75756 65730 4089 82225 79484 13573 9469 6886
93027 41604 27985 74843 219 29957 63527 32122 5535 70971 10777 84095 31150
46182 61254 81310 14150 76225 29460 71840 10670 12088 29642 26360 43 3573
23524 33798 19966 38513 30342 77460 31607 46819 33920 69490 20963 89376
32808 79668 72680 62613 72359 26553 46581 23271 9654 58370 27314 61684
66642 63064 50170 54613 10936 7169 73160 19634 62636 38940 95661 43026
92014 67040 24004 20160 76528 90084 11063 620 30949 93392 59588 44225 5
55916 24731 61832 99967 52458 72779 1961 29625 7520 18944 2168 71043 2105
85923 93575 51282 73554 26377 28022 96220 90621 33140 91684 58903 25830
31925 56754 35824 87964 91089 74158 36151 77124 50576 8698 77806 59046
86188 27393
14/2220196341
```

Weightage - 25Sample InputSample Output

```
5 4
1 4 4 4 1
1/10
```

Sample InputSample Output

```
16 2
1 2 2 3 1 2 2 3 1 2 2 3 1 2 2 3
1/10
```

Solution

```c
#include <stdio.h>
#define gc getchar_unlocked
#define pc putchar_unlocked
inline long long int sscan()
{
   long long int n=0;
   int ch=gc();
   while( ch < '0' || ch > '9' )
        ch=gc();
   while(  ch >= '0' && ch <= '9' )
    {
        n = (n<<3)+(n<<1) + ch-'0';
        ch=gc();
    }

   return n;
}

inline void lprint(long long int a)
{                                      /**for print long int**/
 int i=0;
```

```c
char S[40];
while(a>0)
{
    S[i++]=a%10+'0';
a=a/10;
}
--i;
while(i>=0)
pc(S[i--]);
//pc('\n');
}
long long int gcd(long long int a,long long int b)
{
            return (b==0)?a:gcd(b,a%b);
}
long long int gcd_bin(long long int u, long long int v) {
  long long int t, k;

  u = u < 0 ? -u : u; /* abs(u) */
  v = v < 0 ? -v : v;
  if (u < v) {
    t = u;
    u = v;
    v = t;
  }
  if (v == 0)
    return u;

  k = 1;
  while (u & 1 == 0 && v & 1 == 0) { /* u, v - even */
    u >>= 1; v >>= 1;
    k <<= 1;
  }

  t = (u & 1) ? -v : u;
  while (t) {
    while (t & 1 == 0)
      t >>= 1;

    if (t > 0)
      u = t;
    else
      v = -t;

    t = u - v;
  }
  return u * k;
}

int main()
{
    long long int n,x,k,num,count,i,res1,res2,res3;
            n=sscan();
            k=sscan();
            count=0;
            for(i=0;i<n;i++)
            {
                    //scanf("%lld",&num);
                    num=sscan();
```

```c
                        if(num==k) count++;
                }
                if(count==0)
                {
                        printf("0/1\n");
                }
                else{
                        res1=count*(count-1)*(count-2);
                        res2=n*(n-1)*(n-2);
                        res3=gcd(res1,res2);
                        //printf("%lld/%lld\n",res1/res3,res2/res3);
                        lprint(res1/res3);
                        printf("/");
                        lprint(res2/res3);
                        printf("\n");
                }
        return 0;
}
```