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## REASONING

1. If in a certain language **MYSTIFY** is coded as **NZTUJGZ**, how is **NEMISES** coded in that code?

(a) MDLHRDR (b) OFNJTFT (c) ODNHTDR (d) PGOKUGU

**Sol.** Clearly, in the code, each letter is the alphabet next to the corresponding letter in the word

**M Y S T I F Y**

**N Z T U J G Z**

So, for **NEMISES**, N will be coded as O, E as F, M as N and so on.

Answer is (b).

2. If **TAP** is coded as **SZO**, then how is **FREEZE** coded?

(a) ESDFYF (b) GQFDYF (c) EQDFYG (d) EQDDYD

**Sol.** Each letter in the code is the alphabet before the corresponding letter in the word.

**S Z O**

**T A P**

3. If **CROWN** is coded as **BSNXM**, how is **BOARD** coded?

(a) ANZQC (b) APZSC (c) CPBSE (d) CNBQE

**Sol.** Each letter is alternately one before and one ahead than the corresponding letter in the word.

So, B is coded as A, O as P, A as Z, R as S, D as C. hence, the answer is (b).

Thus, in **FREEZE**, F is coded as E, R as Q, E as D and Z as Y.

4. If **TAIL** is coded as **VCKN**, how is **PEACE** coded?

**Sol.** In the code each letter is two ahead than the corresponding letter in the word.

Thus, P is coded as R, E as G, A as C and C as E. so the answer is (a)

5. If **LIGHT** is coded as **LJGIT**, how is **FLAMES** coded?

(a) GLBNET (b) FKALER (c) FMANET (d) GLBMFS

**Sol** In the code, each letter is alternatively the same and one ahead than the corresponding letter in the word. So, in FLAMES, F is coded as F, L as M, A as A, M as N, E as E and S as T.

The answer is (C)

6. In a certain code, *SIKKIM* is written as *THLJL* how is *TRAINING* written in that code?

**Sol:** Clearly, the letters in the word *SIKKIM* are moved alternatively one step forward and one step backward to obtain the letters of the code.

UQBHOHOF

7. In a certain code, *FORGE* is written as *FPTJI* how is *CULPRIT* written in that code?

**Sol:** Clearly, the first letter in the word *FORGE* remains as it is and the second, third, fourth and fifth letters are respectively moved one, two, three and four steps forward to obtain the corresponding letters of the code.

CVNSVNZ

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**In each questions below are given two statements followed by two conclusions numbered I and II. You have to take the two given statements to be true even if they seem to be at variance from the commonly known facts and then decide which of the given conclusion logically follows from the two given statements, disregarding commonly known facts.**

**Give answer (a) if only conclusion I follows; (b) if only conclusion II follows; © if either I or II follows; (d) if neither I nor II follows; and (e) if both I and II follows.**

**8. Statements :** All cakes are ice-creams.

All ice-creams are toffees.

**Conclusions:** I . All cakes are toffees.

II. All toffees are ice-creams.

**Sol** (a) Since both statements are affirmative, the conclusions must be

affirmative. Conclusion II cannot follow as it contains the middle term. So only conclusion I follows

**9. Statements :** All tigers are ships

some ships are cupboards.

**Conclusions:** I some tigers are cupboards.

II some cupboards are tigers.

**Sol.** (d) the first premise is A type and distributes the subject. So, the middle term 'ships', which forms its predicate, is not distributed.

The second premise is I type and does not distribute either subject or predicate.

So, middle term 'Ships' forming its subject is not distributed. Since the middle term is not distributed at least once in the premises, no conclusion follows.

**10. Statements :** Some pearls are gems.

Some gems are ornaments.

**Conclusions:** I. Some gems are pearls.

II Some ornaments are gems.

**Sol.** (d) Since both the premises are particular, no conclusion follows.

**11. Statements :** some sticks are bolts.

Kite is a stick

**Conclusions:** I some bolts are sticks.

II some kites are bolts.

**Sol.** (d) the middle term 'sticks' forming the subject is not distributed in the first premise which is an I type proposition. The middle term forming the predicate is not distributed in second premise as it is an A type proposition and distributes subject only.

**12. Statements :** some ministers are clerks.

All clerks are businessmen.

**Conclusions:** I some ministers are businessmen.

If all businessmen are clerks.

**Sol.** (a) Since one premise is particular, the conclusion must be particular. So only conclusion I follows.

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**13.** Which is the number that comes next in the following sequence?

4, 6, 12, 14, 28, 30, (...)

**Sol:** The sequence is a combination of two series:

i. 4, 12, 28, (...) and ii. 6, 14, 30

Now, the pattern followed in each of the above two series is:

+8, +16, +32

So, missing number =  $28 + 32 = 60$

**14.** Find the wrong number in the given series?

7, 28, 63, 124, 215, 342, 511

**Sol:** Clearly, the correct sequence is

$2^3 - 1, 3^3 - 1, 4^3 - 1, 5^3 - 1, \dots$

Therefore, 28 is wrong and should be replaced by  $(3^3 - 1)$  i.e, 26.

**15.** Which term comes next in the series : YEV, WFD, UHG, SKI ?

**Sol:** Clearly, the first letter of each term is moved two steps backward to obtain the first letter of the next term. So, the first letter of the missing term will be Q.

The second letter of the first, second, third and fourth terms are respectively moved one, two, three and four steps forward to obtain the corresponding letter of the subsequent term. So, second letter in the missing term will be O.

The third letter is alternatively moved two and three steps forward to obtain the corresponding letter of the subsequent term. So the third letter in the missing term will be L.

Thus the missing term is QOL.

**16.** aab \_ aaa \_ bba \_

**Sol:** 1. The first blank space should be filled in either by 'b' so that we have two a' s followed by two b' s.

2. The second blank space should be filled in either by 'a' so that we have four a's followed by two b's, or by 'b' so that we have three a's followed by three b's.

3. The last space must be filled in by 'a'.

4. Thus, we have two possible answers : 'baa' and 'bba' .

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17. One day, Ravi left home and cycled 10 km southwards, turned right and cycled 5 km and turned right and cycled 10 km and turned left and cycled 10 km. How many kilometers will we have to cycle to reach his home straight?

**Sol:** Clearly, Ravi starts from home at A, moves 10 km southwards upto B, turns right and moves 5 km upto C, turns right again and moves 10 km upto D and finally turns left and moves 10 km upto E.

Thus, his distance from initial position A

$$= AE = AD + DE$$

$$= BC + DE = (5 + 10) \text{ km} = 15 \text{ km}$$

18. Kailash faces towards north. Turning to his right, he walks 25 meters. He then turns to his left and walks 30 meters. Next, he moves 25 meters to his right. He then turns to his right again and walks 55 meters. Finally, he turns to the right and moves 40 meters. In which direction is he now from his starting point?

**Sol:**

Kailash turns towards right from north direction. So, he walks 25 m towards east upto B, turns left and moves 30 m upto C, turns right and goes 25 m upto D. At D, he turns to right towards the south and walks 55m upto E. Next, he again turns to right and walks 40 m upto F, which is his final position. F is to south-east of A. So, he is to the south-east from his starting point.

19. Deepa moved a distance of 75 meters towards the north. She then turned to the left and walking for about 25 meters, turned left again and walked 80 meters. Finally, she turned to the right at an angle of  $45^\circ$ . In which direction was she moving finally

**Sol:** Deepa started from A, moved 75 m upto B, turned left and walked 25 m upto C. She then turned left again and moved 80 m upto D. Turning to the right at an angle of  $45^\circ$ , she was finally moving in the direction DE i.e., South-west.

20. Kunal walks 10 kms towards North. From there he walks 6 kms towards south.

Then, he walks 3 km towards East. How far and in which direction is he with reference to his starting point?

**Sol:** Clearly, Kunal moves from A 10 km northwards upto B, then moves 6 km southwards upto C, turns towards east and walks 3km upto D.

$$\text{Then, } AC = ( AB - BC ) = ( 10 - 6 ) = 4 \text{ km}$$

$$CD = 3 \text{ km}$$

So, Kunal's distance from starting point A

$$= AD = \sqrt{AC^2 + CD^2} = \sqrt{4^2 + 3^2} = 5 \text{ km}$$

Also, D is to the North-East of A.

**21.** Johnson left for his office in his car. He drove 15 km towards north and then 10 km towards west. He then turned to the south and covered 5 km. Further, he turned to the east and moved 8 km. Finally, he turned right and drove 10 km. How far and in which direction is he from his starting point?

**Sol:** Clearly, Johnson drove 15 km from A to B northwards and then 10 km from B to C towards west. He then moves 5 km southwards from C to D and 8 km eastwards upto E. Finally, he turned right and moved 10 km upto F.

Therefore, A and F lie in the same straight line and F lies to the west of A.

So, Johnson's distance from the starting point

$$A = AF = ( BC - DE ) = ( 10 - 8 ) \text{ km} = 2 \text{ km}$$

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**22.** Anil introduces Rohit as the son of the only brother of his father's wife. How is Rohit related to Anil?

(a) Cousin (b) Son (c) uncle (d) son-in-law

**Sol.** (a) The relations may be seen as follows.

Father's wife ---> mother; mother's brother ---> uncle; uncle's son ---> cousin;

so Rohit is Anil's cousin .

**23.** If Nina says "Anita's Father Raman is the only son of my father in law Mahipal", then how is Bindu, (who is the sister of Anita,) related to Mahipal?

**Sol:** Only son of Nina's Father in law Mahipal- Nina's husband.

So, Raman is Nina's husband and Anita and Bindu are his daughters.

Thus, Bindu is the grand daughter of Mahipal.

**24.** Given that

1. A is the Mother of B;
2. C is the Son of A;
3. D is the Brother of E;
4. E is the daughter of B

The Grandmother of D is ?

**Sol:** D is the brother of E and E is the daughter of B. This means that D is the son of B.

Also, A is the mother of B. So, A is the Grandmother of D.

**25.** If  $A + B$  means A is the sister of B;  $A - B$  means A is the brother of B;  $A * B$  means A is the daughter of B. Which of the following shows the relation that E is the maternal uncle of D.

- a.  $D + F * E$  b.  $D - F * E$  c.  $D * F + E$  d.  $D * F - E$

**Sol:** Clearly, E is the maternal uncle of D means D is the daughter of the sister of E i.e.,  $D * F + E$ .

Hence the answer is 'c'.

**26.**  $A + B$  means A is the daughter of B;  $A - B$  means A is the husband of B;  $A * B$  means A is the brother of B.

If  $P + Q * R$ , which of the following is true

- a. P is the niece of R b. P is the daughter of R c. P is the cousin of R d. P is the daughter in law of R

**Sol:**  $P + Q * R$  means P is the daughter of Q who is the brother of R i.e., P is the niece of R

**27.** A family consists of 6 members P, Q, R, X, Y and Z. Q is the son of R but R is not mother of Q. P and R are married couple. Y is the brother of R. X is the

daughter of P. Z is the brother of P. How is Q related to X?

**Sol:** X is the sister of Q who is a male. So Q is brother of X.

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**28.**

(a) 25 (b) 37 (c) 41 (d) 47

**Sol:** Clearly, in fig. (A),  $5 * 3 + 4 = 19$ .

Therefore, In fig. (B), missing number =  $7 * 5 + 6 = 41$ .

Hence, the answer is (C).

**29.**

(a) 5 (b) 4 (c) 3 (d) 2

**Sol:** Clearly, in the second column,  $22 + 2 - 23 = 1$ .

In the third column,  $40 + 5 - 43 = 2$ .

Therefore, in the first column, missing number =  $21 + 1 - 20 = 2$ .

Hence, the answer is (d).

**30.**

(a) 11 (b) 6 (c) 3 (d) 2

**Sol:** Clearly, in the first column,  $6 * 4 / 3 = 24 / 3 = 8$ .

In the second column,  $18 * 3 / 2 = 54 / 2 = 27$ .

Let the missing number in the third column be x.

Then,  $15 * x / 5 = 9$  or  $x = 3$ .

Hence, the answer is (c).

**31.**

(a) 8C (b) 12B (c) 16C (d) 18C

**Sol:** In each row, out of the letters A, B and C, each of these must appear once. Also in each column the product of the first and third numbers is equal to the second number. So, the missing number will be  $(2 * 4)$  i.e. 8 and the letter will be C. Thus, the answer is 8C.

Hence, the correct answer is (a).



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**Choosing the odd word:**

**32.** Choose the word which is least like the other words in the group.

- a. Kiwi b. Eagle c. Emu d. Penguin e. Ostrich

**Sol:** All the expect Eagle are flightless birds.

**Ans:** b

**33.** Choosing the odd pair of words.

- a. Pascal : Pressure b. Watt : Power c. Ampere : Current d. Radian : Degree  
e. Joule : Energy

**Sol:** In all the other pairs, first is a unit to measure the second.

**Ans:** d

**34.** Choosing the odd numeral.

- a. 263 b. 111 c. 242 d. 551 e. 383

**Sol:** In all the other numbers, the middle digit is equal to the product of other two digits.

**Ans:** e

**35.** Choosing the odd numeral Pair/Group.

- a. 71, 7, 3, 17 b. 67, 71, 3, 5 c. 41, 5, 3, 47 d. 37, 14, 19, 7 e. 11, 3, 3, 17

**Sol:** All other pairs except 'd' consists of prime numbers only, while 'd' consistes of one composite number i.e., 14.

**Ans:** d.

**36.** Choosing the odd letter group.

- a. ACHI b. DFKL c. MNST d. OQVW e. PRWX

**Sol:** In all other groups, the first two letters are alternative, third and fourth letters are consecutive and there is a gap of 4 letters between the second and third letters.

**Ans:** c

**Directions: For the assertions (A) and reasons ® below, choose the correct alternative from the following:**

- (a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true but R is not the correct explanation of A.

© A is true but R is false

(d) A is false but R is true.

(e) Both are false.

**37. Assertion (A) :** carbon monoxide when inhaled causes death.

**Reason ( R):** carbon monoxide combines with haemoglobin.

**Sol. (a)**

carbon monoxide when inhaled combines with haemoglobin of blood to form carboxyhaemoglobin which inhibits the transport of oxygen.

**38. Assertion (A) :** we feel colder on mountains than on plains

**Reason ( R):** temperature decreases with altitude

**Sol. (a)**

higher above the sea level, temperature decreases at the rate of  $1^{\circ}\text{C}$  for every 165 metres of ascent making mountain peaks colder.

**39. Assertion (A) :** inside the earth metals are present in molten state.

**Reason ( R):** earth absorbs the sun rays

**Sol. ©**

inside the earth, the high temperature and pressure keeps the metals in molten state. The earth doesn't absorb sun rays but reflects them.

**40. Assertion (A) :** in india, people elect their own representatives.

**Reason ( R):** India is a democracy

**Sol. (a)**

India, being a democracy, it is a government run by the representatives elected by its people.

**41. Assertion (A) :** vaccines prevent diseases

**Reason ( R):** vaccines must be given to children

**Sol. (b)**

vaccines prevent diseases by developing immunity inside body and vaccines must be given to children to build in them a resistance against diseases

42. if + means / , - means \* , / means + , \* means - then,  $36 * 12 + 4 / 6 + 2 - 3 = ?$

Sol. 42

43. if p denotes +, q denotes -, r denotes / and s denotes \* then  $18 s 36 r 12 q 6 p 7 = ?$

Sol. 55

44. it being given that: > denotes +, < denotes -, + denotes /, - denotes =, = denotes 'less than' and \* denotes 'greater than', find which of the following is correct statement.

(a)  $3 + 2 > 4 = 9 + 3 < 2$  (b)  $3 > 2 > 4 = 18 + 3 < 1$  ©  $3 > 2 < 4 * 8 + 4 < 2$  (d)  $3 + 2 < 4 * 9 + 3 < 3$

sol ©

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45. If Tom buys a red skateboard, then Amanda buys green in-line skates." Which statement below is logically equivalent?

1. If Amanda does not buy green in-line skates, then Tom does not buy a red skateboard.
2. If Tom does not buy a red skateboard, then Amanda does not buy green in-line skates.
3. If Amanda buys green in-line skates, then Tom buys a red skateboard.
4. If Tom buys a red skateboard, then Amanda does not buy green in-line skates.

Ans: 1

**Explanation:** The original statement and its contrapositive are logically equivalent.

Remember that the contrapositive is the "converse of the inverse" -- flip the "If ...then" sections AND insert "NOTs".

46. Which statement represents the inverse of the statement "If it is snowing, then Skeeter wears a sweater."?

1. If Skeeter wears a sweater, then it is snowing.
2. If Skeeter does not wear a sweater, then it is not snowing.
3. If it is not snowing, then Skeeter does not wear a sweater.
4. If it is not snowing, then Skeeter wears a sweater.

Ans: 3

**Explanation:** Remember: to form the INVERSE of a statement, insert "NOT" into the "If" and the "then" sections of the sentence

47. Which of the following is the converse of the statement: "If  $x > 4$ , then  $x + 2 > 5$ "?

1. If  $x + 2 < 5$ , then  $x < 4$ .
2. If  $x$  is not greater than 4, then  $x + 2$  is not greater than 5.
3. If  $x + 2 > 5$ , then  $x > 4$ ,
4. If  $x + 2$  is not greater than 5, then  $x$  is not greater than 4.

**Ans:** 3

**Explanation:** Remember: to form the CONVERSE of a statement, the "If" and the "then" sections of the statement switch places.

48. Which statement is logically equivalent to "If Yoda cannot use a lightsaber, then he cannot help Luke win the battle."

1. Yoda cannot use a lightsaber and he will help Luke win the battle.
2. If Yoda can help Luke win the battle, then he can use a lightsaber.
3. Yoda can use a lightsaber if and only if he can help Luke win the battle.
4. Yoda cannot use a lightsaber and will not help Luke win the battle.

**Ans:** 2

**Explanation:** A statement is logically equivalent to its contrapositive. To form the contrapositive, switch the "If" and "then" sections of the statement AND insert "NOTs" into each section. Notice in this situation, that inserting "NOTs" turns the thoughts positive (you are negating negative thoughts).

49. Which of the following is an open sentence?

1. A trapezoid is a four-sided polygon.
2. Albany is a city in New York State.
3. It was blue with white stripes.
4.  $5(20) + 3 = 113$

**Ans:** 3

**Explanation:** An open sentence is a sentence in which you cannot determine whether it is true or false due to a lack of information. Answers 1 and 2 are true. Answer 4 is false. The truth of Answer 3 cannot be determined.

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50. In the following figure: A B C

D

E F G

H

I

Each of the digits 1, 2, 3, 4, 5, 6, 7, 8, and 9 is:

a) Represented by a different letter in the figure above.

b) Positioned in the figure above so that each of  $A + B + C$ ,  $C + D + E$ ,  $E + F + G$ , and  $G + H + I$  is equal to 13.

Which digit does E represent?

Ans. E is 4

**In each of these questions compare the figures in the first two boxes. Then look at the third figure and find its partner in the boxes on the right.**

51.

							A	B	C	D	E
		is to		as		is to					

Ans : B

52.

							A	B	C	D	E
		is to		as		is to					

Ans : A

53.

							A	B	C	D	E
		is to		as		is to					

Ans : B

54.

							A	B	C	D	E
		is to		as		is to					

**Ans : B**

**In each of these questions there are five boxes containing shapes or patterns. There is a letter at the side of each of the first four boxes. These pairs of letters are codes for the shapes or patterns in each box. Work out the two-letter code for the last box.**

**55.**

M F	T F	T P	M F	? ?
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**Ans : M & P**

**56.**

Z U	W U	Z L	W L	? ?
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**Ans : W & U**

**57.**

R S	T F	R F	R S	? ?
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**Ans : T & S**

**58.**

Y F	T F	Y P	T P	? ?
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**Ans : T & F**

**P,Q,R,S and T are five children who attend the same school. P and T usually wear a white shirt and the others generally wear blue ones. Q and S enjoy games lessons but the others do not. Q, R and T have a man for a teacher and the rest have a lady. Now answer the following questions by writing the correct letter in the brackets.**

59. Which child who enjoys games has a lady teacher? ( S )

60. Which child has a male teacher and usually wears a white shirt? ( T )

61. Which one has a female teacher and wears mainly blue shirts? ( S )

62. Which one enjoys taking part in games lessons and also has a male teacher? ( Q )

63. Which child dislikes games lessons and has a lady who teaches him? ( P )

64. Which child usually arrives at school wearing a blue shirt and does not enjoy games lessons? ( R )

65. Which child mainly wears white shirts and is taught by a female teacher? ( P )

66. Which TWO children who do not enjoy games lessons are taught by a male?

**( R & T )**

**A, B, C, D and E are new cars in a showroom. B and D are sports cars, the rest are saloons. C and E have radios, the rest do not. A, C and D have four doors, the rest have two. Now answer the following questions.**

67. Which saloon car has a radio and four doors? ( c )

68. Which car without a radio has two doors? ( B )

69. Which saloon car does not have a radio? ( A )

70. Which sports car has four doors? ( D )

71. Which saloon car has two doors? ( E )

72. Which TWO cars with four doors have no radio? ( A & D )

**Read the following information carefully and answer the questions given below .**

Six persons A,B,C,D,E,F are sitting in two rows, three in each.

E is not at the end of any row.

D is second to the left of F.

C, the neighbour of E, is sitting diagonally opposite to D.

B is the neighbour of F.

73. which of the following are sitting diagonally opposite to each other?

(a) F & C (b) D & A (c) A & C (d) A & F (e) A & B.

**Ans. (d)**

74. who is facing B?

(a) A (b) C © D (d) E (e) F

**Ans. (d)**

75. which of the following are in the same row?

(a) A and E (b) E and D © C and B (d) A and B (e) C and E

**Ans. (a)**

76. which of the following are in one of the two rows?

(a) FBC (b) CEB © DBF (d) AEF (e) ABF

**Ans. ©**

77. After interchanging seat with E , who will be the neighbours of D in the new

position?

(a) C and A (b) F & B © only B (d) only A (e) only C

**Ans.** (a)

**EXPLANATION :**

The given information can be analyzed as follows:-

E is not at end. So, E must be in the middle of one of the rows.

D is second to the left of F. so, order of the row must be D ? F.

C is neighbour of E and sitting diagonally opposite to D means C is under F in the other row i.e. D ? F

? E C

B is the neighbour of F.

so, the arrangement must be D B F

A E C

**Read the following information carefully and answer the questions given below .**

There are six cities A, B, C,D,E,F

A is not a hill station.

B and E are historical places

D is not an industrial city.

A and D are not historical cities.

A and B are not alike.

78. which two cities are industrial centres?

**Ans** E and F

79. which two cities are historical places?

**Ans** C and F

80. which two cities are hill stations?

**Ans** B and D

81. which city is a hill station and industrial centre but not a historical place?

**Ans** E



82. which two cities are neither historical places nor industrial centres?

**Ans** B and D

83. Introducing a girl vipin said, “ her mother is the only daughter of my mother-in- law.”  
how is vipin related to the girl?

**Ans** daughter

only daughter of mother-in-law ----> wife; girl's mother ----> vipin's wife. So, vipin is  
girl's father.

**Directions: if in a certain language, ENTRY is coded as 12345 and STEADY is coded as 931785, then state which is the correct code.**

**84. TENANT**

(a) 312723 (b) 987654 © 456789 (d) 212654

**Ans** (a)

**85. SEDATE**

(a) 918731 (b) 243785 © 854219 (d) 745397

**Ans** (a)

**Explanation:**

the alphabets are coded as follows:

**E N T R Y S A D**

**1 2 3 4 5 9 7 8**

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