

# Discrete Math Interview Questions And Answers Guide.



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## Discrete Math Job Interview Preparation Guide.

### Question # 1

A \_\_\_\_\_ is an ordered collection of objects.

- a) Relation
- b) Function
- c) Set
- d) Proposition

**Answer:-**

- c) Set

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### Question # 2

The set O of odd positive integers less than 10 can be expressed by \_\_\_\_\_ .

- a) {1, 2, 3}
- b) {1, 3, 5, 7, 9}
- c) {1, 2, 5, 9}
- d) {1, 5, 7, 9, 11}

**Answer:-**

- b) {1, 3, 5, 7, 9}

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### Question # 3

What is Discrete Math?

**Answer:-**

Discrete mathematics is the study of mathematical structures that are fundamentally discrete rather than continuous.

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### Question # 4

What is the Cartesian product of  $A = \{1, 2\}$  and  $B = \{a, b\}$ ?

- a)  $\{(1, a), (1, b), (2, a), (b, b)\}$
- b)  $\{(1, 1), (2, 2), (a, a), (b, b)\}$
- c)  $\{(1, a), (2, a), (1, b), (2, b)\}$
- d)  $\{(1, 1), (a, a), (2, a), (1, b)\}$

**Answer:-**

- c)  $\{(1, a), (2, a), (1, b), (2, b)\}$

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### Question # 5

Power set of empty set has exactly \_\_\_\_\_ subset.

- a) One
- b) Two
- c) Zero
- d) Three

**Answer:-**

- a) One

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### Question # 6

The Cartesian Product  $B \times A$  is equal to the Cartesian product  $A \times B$ . Is it True or False?



- a) True
- b) False

**Answer:-**

b) False  
Let  $A = \{1, 2\}$  and  $B = \{a, b\}$ . The Cartesian product  $A \times B = \{(1, a), (1, b), (2, a), (2, b)\}$  and the Cartesian product  $B \times A = \{(a, 1), (a, 2), (b, 1), (b, 2)\}$ . This is not equal to  $A \times B$ .

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### Question # 7

What is the cardinality of the set of odd positive integers less than 10?

- a) 10
- b) 5
- c) 3
- d) 20

**Answer:-**

- b) 5

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### Question # 8

Which of the following two sets are equal?

- a)  $A = \{1, 2\}$  and  $B = \{1\}$
- b)  $A = \{1, 2\}$  and  $B = \{1, 2, 3\}$
- c)  $A = \{1, 2, 3\}$  and  $B = \{2, 1, 3\}$
- d)  $A = \{1, 2, 4\}$  and  $B = \{1, 2, 3\}$

**Answer:-**

- c)  $A = \{1, 2, 3\}$  and  $B = \{2, 1, 3\}$

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### Question # 9

What is the Cardinality of the Power set of the set  $\{0, 1, 2\}$ .

- a) 8
- b) 6
- c) 7
- d) 9

**Answer:-**

- a) 8

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### Question # 10

The members of the set  $S = \{x \mid x \text{ is the square of an integer and } x < 100\}$  is \_\_\_\_\_.

- a)  $\{0, 2, 4, 5, 9, 58, 49, 56, 99, 12\}$
- b)  $\{0, 1, 4, 9, 16, 25, 36, 49, 64, 81\}$
- c)  $\{1, 4, 9, 16, 25, 36, 64, 81, 85, 99\}$
- d)  $\{0, 1, 4, 9, 16, 25, 36, 49, 64, 121\}$

**Answer:-**

- b)  $\{0, 1, 4, 9, 16, 25, 36, 49, 64, 81\}$

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### Question # 11

A function is said to be \_\_\_\_\_, if and only if  $f(a) = f(b)$  implies that  $a = b$  for all  $a$  and  $b$  in the domain of  $f$ .

- a) One-to-many
- b) One-to-one
- c) Many-to-many
- d) Many-to-one

**Answer:-**

- b) One-to-one

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### Question # 12

The set of positive integers is \_\_\_\_\_.

- a) Infinite
- b) Finite
- c) Subset
- d) Empty

**Answer:-**

- a) Infinite

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### Question # 13

The value of  $\frac{1}{2} \times \frac{5}{2} \times$  is \_\_\_\_\_.

- a) 1
- b) 2
- c) 3
- d) 0.5

**Answer:-**

- a) 1

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### Question # 14

Which of the following function  $f: \mathbb{Z} \times \mathbb{Z} \rightarrow \mathbb{Z}$  is not onto?

- a)  $f(a, b) = a + b$
- b)  $f(a, b) = a$
- c)  $f(a, b) = |b|$
- d)  $f(a, b) = a - b$

**Answer:-**

- c)  $f(a, b) = |b|$

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### Question # 15

The domain of the function that assign to each pair of integers the maximum of these two integers is \_\_\_\_\_.

- a)  $\mathbb{N}$
- b)  $\mathbb{Z}$
- c)  $\mathbb{Z}^+$
- d)  $\mathbb{Z} \times \mathbb{Z}^+$

**Answer:-**

- d)  $\mathbb{Z} \times \mathbb{Z}^+$

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### Question # 16

Let  $f$  and  $g$  be the function from the set of integers to itself, defined by  $f(x) = 2x + 1$  and  $g(x) = 3x + 4$ . Then the composition of  $f$  and  $g$  is \_\_\_\_\_.

- a)  $6x + 9$
- b)  $6x + 7$
- c)  $6x + 6$
- d)  $6x + 8$

**Answer:-**

- a)  $6x + 9$

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### Question # 17

\_\_\_\_\_ bytes are required to encode 2000 bits of data,

- a) 1
- b) 2
- c) 3
- d) 8

**Answer:-**

- b) 2

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### Question # 18

The inverse of function  $f(x) = x^3 + 2$  is \_\_\_\_\_.

- a)  $f^{-1}(y) = (y - 2)^{1/2}$
- b)  $f^{-1}(y) = (y - 2)^{1/3}$
- c)  $f^{-1}(y) = (y)^{1/3}$
- d)  $f^{-1}(y) = (y - 2)$

**Answer:-**

- b)  $f^{-1}(y) = (y - 2)^{1/3}$

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### Question # 19

The function  $f(x) = x^3$  is bijection from  $\mathbb{R}$  to  $\mathbb{R}$ . Is it True or False?

- a) True
- b) False

**Answer:-**

- a) True

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### Question # 20

The  $g^{-1}(\{0\})$  for the function  $g(x) = \hat{a}E\check{S}x\hat{a}E$  is \_\_\_\_\_.

- a)  $\{x \mid 0 \leq x < 1\}$
- b)  $\{x \mid 0 < x \leq 1\}$
- c)  $\{x \mid 0 < x < 1\}$
- d)  $\{x \mid 0 \leq x \leq 1\}$

**Answer:-**

- d)  $\{x \mid 0 \leq x \leq 1\}$

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### Question # 21

The function  $f(x) = x + 1$  from the set of integers to itself is onto. Is it True or False?

- a) True
- b) False

**Answer:-**

- a) True

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### Question # 22

The intersection of the sets  $\{1, 2, 5\}$  and  $\{1, 2, 6\}$  is the set \_\_\_\_\_.

- a)  $\{1, 2\}$
- b)  $\{5, 6\}$
- c)  $\{2, 5\}$
- d)  $\{1, 6\}$

**Answer:-**

- a)  $\{1, 2\}$

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### Question # 23

The union of the sets  $\{1, 2, 5\}$  and  $\{1, 2, 6\}$  is the set \_\_\_\_\_.

- a)  $\{1, 2, 6, 1\}$
- b)  $\{1, 2, 5, 6\}$
- c)  $\{1, 2, 1, 2\}$
- d)  $\{1, 5, 6, 3\}$

**Answer:-**

- b)  $\{1, 2, 5, 6\}$

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### Question # 24

Which of the following two sets are disjoint?

- a)  $\{1, 3, 5\}$  and  $\{1, 3, 6\}$
- b)  $\{1, 2, 3\}$  and  $\{1, 2, 3\}$
- c)  $\{1, 3, 5\}$  and  $\{2, 3, 4\}$
- d)  $\{1, 3, 5\}$  and  $\{2, 4, 6\}$

**Answer:-**

- d)  $\{1, 3, 5\}$  and  $\{2, 4, 6\}$

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### Question # 25

Two sets are called disjoint if there \_\_\_\_\_ is the empty set.

- a) Union
- b) Difference
- c) Intersection
- d) Complement

**Answer:-**

- c) Intersection

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### Question # 26

The bit string for the set  $\{2, 4, 6, 8, 10\}$  (with universal set of natural numbers less than or equal to 10) is \_\_\_\_\_.

- a) 0101010101
- b) 1010101010
- c) 1010010101
- d) 0010010101

**Answer:-**

- a) 0101010101

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### Question # 27

The difference of  $\{1, 2, 3\}$  and  $\{1, 2, 5\}$  is the set \_\_\_\_\_.

- a)  $\{1\}$
- b)  $\{5\}$
- c)  $\{3\}$
- d)  $\{2\}$

**Answer:-**

- c)  $\{3\}$

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### Question # 28

Let  $A_i = \{i, i+1, i+2, \dots\}$ . Then set  $\{n, n+1, n+2, n+3, \dots\}$  is the \_\_\_\_\_ of the set  $A_i$ .

- a) Union
- b) Intersection
- c) Set Difference
- d) Disjoint

**Answer:-**

- b) Intersection

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### Question # 29

The complement of the set A is \_\_\_\_\_.

- a)  $A - B$
- b)  $U - A$
- c)  $A - U$
- d)  $B - A$

**Answer:-**

- b)  $U - A$

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### Question # 30

The bit strings for the sets are 1111100000 and 1010101010. The union of these sets is \_\_\_\_\_.

- a) 1010100000
- b) 1010101101
- c) 1111111100
- d) 1111101010

**Answer:-**

- d) 1111101010

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### Question # 31

The set difference of the set A with null set is \_\_\_\_\_.

- a) A
- b) null
- c) U
- d) B

**Answer:-**

- a) A

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### Question # 32

What types of math do you use? Re: Calculus, Algebra, Fractions?

**Answer:-**

Every type. I am in calculus right now and it uses every time of mathematics that I have learned previously.

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### Question # 33

What types of tools or measuring devices do you use related to math?

**Answer:-**

No devices use for measuring in math.

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### Question # 34

During given week a programmer spend  $\frac{1}{4}$  of his time preparing charts,  $\frac{3}{8}$  of his time for coding, rest of his time for debugging the programs. If he had 48 hrs during the week how many hours did he spend debugging the program?



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**Answer:-**

18hrs.

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**Question # 35**

If a 16 story building has 12000ft on each floor. Company A rents 7 floors and company B rents 4 floors. What is the number of square feet of unrented floor space?

**Answer:-**

60000 sqft.

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**Question # 36**

A man owns  $\frac{2}{3}$  of a computer service buroue business and sells  $\frac{3}{4}$  of his share for \$75000.What is the value of the business?

**Answer:-**

150,000.

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**Question # 37**

Computer printer produces 176400 lines in a given day. If the printer is in operation for 7 hrs during the day how many lines did it print per minute?

**Answer:-**

420.

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**Question # 38**

If a 12 shell cupboard requires 18 ft of wall space then how much wall space would a 30 cup shelf require?

**Answer:-**

45.

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**Question # 39**

A computer tape library there are two racks with 40 tapes per rack.In a given day 30 tapes are in use . What fraction remains in the rack?

**Answer:-**

$\frac{5}{8}$

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**Question # 40**

In what ways do you use math in your daily life Sam?

**Answer:-**

Since I am at college to study mathematics I would say that my daily life revolves around mathematics.

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**Question # 41**

In certain company 20% of the men and 40% of the women attended the annual company picnic. If 35% of all the employees are men .What % of all the employee went to the picnic?

**Answer:-**

33%.

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**Question # 42**

In normal distribution, approximately what percentage of the cases, to the nearest whole number, falls within 4 standard deviations of the mean?

**Answer:-**

100%

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**Question # 43**

Converse of this theorem is: if the sum of the squares of two sides of a triangle equal the square of the third side then the triangle is a right triangle. What is the name of the theorem?

**Answer:-**

Pythagorean Theorem.

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**Question # 44**

If card punch operator can process 80 cards in half an hour How many cards can this process in 7hr 30min?

**Answer:-**

1200.

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**Question # 45**

Give range for the following six values 2, 7, 11, 19, 25, 33:

**Answer:-**

31.

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**Question # 46**

How many numbers must be selected from the set  $\{1, 2, 3, 4, 5, 6\}$  to guarantee that at least one pair of these numbers add up to 7?

1 point

2

3

4

5?

**Answer:-**

No Answer is Posted For this Question

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