

# NIMCET 2021 MATHS QUESTIONS

## 1. Question:

There are 50 questions in a paper. Find the number of ways in which a student can attempt one or more questions.

**Options:**

- (a)  $2^{50} - 1$
- (b)  $2^{50} - 2$
- (c)  $2^{50} - 2$
- (d)  $2^{50} - 1$

**Answer:** (a)

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## 2. Question:

If a variable takes values  $0, 1, 2, 3, \dots, 50$  with frequencies  $1, \binom{50}{1}, \binom{50}{2}, \dots, \binom{50}{50}$ , then the arithmetic mean (A.M.) is:

**Options:**

- (a) 50
- (b) 25
- (c)  $\binom{50}{2}(250)$
- (d) 51

**Answer:** (b)

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## 3. Question:

Given  $A = \{1, 2, 3, 4\}$ ,  $B = \{3, 4, 5\}$ , then the number of elements in  $(A \cup B) \cup (A \cap B) \setminus (A \cap B)$  is:

**Options:**

- (a) 18
- (b) 20
- (c) 24
- (d) 30

**Answer:** (d)

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#### 4. Question:

If  $|K| \leq 5$  and  $\theta \in [0^\circ, 360^\circ)$ , then the number of different solutions of  $3\cos\theta + 4\sin\theta = k$  is:

**Options:**

- (a) 0
- (b) 1
- (c) 2
- (d) Infinite

**Answer:** (c)

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#### 5. Question:

Let  $\vec{a} = i^{\wedge} + j^{\wedge}$  and  $\vec{b} = 2i^{\wedge} + k^{\wedge}$ . Then, the point of intersection of the lines  $\vec{r} = \vec{a} + \lambda\vec{b}$  and  $\vec{r} = \vec{b} + \mu\vec{a}$  is:

**Options:**

- (a)  $i^{\wedge} + j^{\wedge} + k^{\wedge}$
- (b)  $3i^{\wedge} + j^{\wedge} + k^{\wedge}$
- (c)  $i^{\wedge} + j^{\wedge} + k^{\wedge}$
- (d)  $3i^{\wedge} + j^{\wedge} + k^{\wedge}$

**Answer:** (d)

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#### 6. Question:

In a triangle, if the sum of two sides is  $x+z$  and their product is  $y(x+z)$ , where  $y$  is the third side of the triangle, then the triangle is:

**Options:**

- (a) Equilateral
- (b) Right angle
- (c) Isosceles
- (d) Obtuse angled

**Answer:** (d)

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#### 7. Question:

Number of common tangents to the circles  $x^2 + y^2 = 4$  and  $x^2 + y^2 - 6x - 8y + 24 = 0$  is:

**Options:**

- (a) 0
- (b) 1
- (c) 3
- (d) 4

**Answer:** (d)

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### 8. Question:

The probability of occurrence of two events EEE and FFF are 0.250.250.25 and 0.500.500.50, respectively. The probability of their simultaneous occurrence is 0.140.140.14. The probability that neither EEE nor FFF occurs is:

**Options:**

- (a) 0.61
- (b) 0.11
- (c) 0.39
- (d) 0.89

**Answer:** (a)

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### 9. Question:

For what value of ppp, the polynomial  $x^4 - 3x^3 + 2px^2 - 6x^4 - 3x^3 + 2px^2 - 6x^4 - 3x^3 + 2px^2 - 6$  is exactly divisible by  $x - 1$ ?

**Options:**

- (a) 2
- (b) 4
- (c) 6
- (d) 8

**Answer:** (b)

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### 10. Question:

Consider the following frequency distribution table:

Class Interval	Frequency
10-20	180
20-30	F1F_1F1

30-40	34
40-50	180
50-60	136
60-70	$F_1 F_2$
70-80	50

If the total frequency is 686 and the median is 42.6, then the values of  $F_1$  and  $F_2$  are:

**Options:**

- (a) 81, 25
- (b) 82, 24
- (c) 83, 23
- (d) 84, 22

**Answer:** (b)

### 11. Question:

The lines  $px+qy=1$  and  $qx+py=1$  are respectively the sides AB, AC of the triangle ABC, and the base BC is bisected at  $(p, q)$ . The equation of the median of the triangle through vertex A is:

**Options:**

- (a)  $(2pq-1)(qx-py+1)+(p^2+q^2-1)(px-qy+1)=0$
- (b)  $(2pq-1)(qx+py+1)+(p^2+q^2-1)(px-qy+1)=0$
- (c)  $(2pq-1)(px-qy+1)+(p^2+q^2-1)(qx-py+1)=0$
- (d)  $(2pq-1)(px-qy+1)+(p^2+q^2-1)(qx+py+1)=0$

**Answer:** (d)

### 12. Question:

If  $a\cos\theta + b\sin\theta = 2$  and  $a\sin\theta - b\cos\theta = 3$ , then  $a^2 + b^2 = ?$

**Options:**

- (a) 13

- (b) 5
- (c) 10
- (d) 12

**Answer:** (a)

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### 13. Question:

A polygon has 44 diagonals. The number of sides is:

**Options:**

- (a) 11
- (b) 10
- (c) 9
- (d) 12

**Answer:** (a)

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### 14. Question:

If the system of equations

$$3x + y - 4z = 3, \quad x - 2y + 3z = 2, \quad 6x + 5y - z = 3$$

has at least one solution, then  $\det(A) = ?$

**Options:**

- (a) -5-5-5
- (b) 3
- (c) 5
- (d) 6

**Answer:** (a)

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## NIMCET 2021 Reasoning Questions

### 1. Question:

Insert the missing number: 8, 7, 11, 12, 14, 17, 17, 22, ?  
8, 7, 11, 12, 14, 17, 17, 22, ?

**Options:**

- (a) 27

- (b) 20
- (c) 22
- (d) 24

**Answer:** (b)

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## 2. Question:

In a class of 50 students, Raghu's rank is twice that of Paul. 10 students have ranked worse than Raghu. Paul's rank in the class is:

**Options:**

- (a) 5th
- (b) 10th
- (c) 15th
- (d) 20th

**Answer:** (b)

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## 3. Question:

Choose the pair that best represents a similar relationship to the one expressed in the original pair of words:

**WAITRESS: RESTAURANT**

**Options:**

- (a) Doctor: Diagnosis
- (b) Actor: Role
- (c) Driver: Truck
- (d) Teacher: School

**Answer:** (d)

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## 4. Question:

How many times in a day are the hands of a clock pointing opposite to each other?

**Options:**

- (a) 4
- (b) 20
- (c) 22
- (d) 14

**Answer:** (c)

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### 5. Question:

In this series, looking at the letter pattern, fill the blank in the middle of the series:

ELFA, GLHA, ILJA, \_\_\_\_\_, MLNAELFA, GLHA, ILJA, \\_ \\_ \\_ \\_, MLNAELFA, GLHA, ILJA, \_\_\_\_\_, MLNA

**Options:**

- (a) OLPA
- (b) KLMA
- (c) LLMA
- (d) KLLA

**Answer:** (d)

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### 6. Question:

If  $Z=52Z = 52Z=52$  and  $ACT=48ACT = 48ACT=48$ , then  $BATBATBAT$  will be equal to:

**Options:**

- (a) 46
- (b) 39
- (c) 44
- (d) 41

**Answer:** (a)

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### 7. Question:

Which word does NOT belong with the others?

**Options:**

- (a) wing
- (b) fin
- (c) beak
- (d) rudder

**Answer:** (c)

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### 8. Question:

Choose the pair of numbers that comes next:

1, 10, 7, 20, 13, 30, 19, \_\_\_\_\_, \_\_\_\_\_ 1, 10, 7, 20, 13, 30, 19, \\_ \\_ \\_, \\_ \\_ \\_ 1, 10, 7, 20, 13, 30, 19, \_\_\_\_\_, \_\_\_\_\_:

**Options:**

- (a) 25, 22
- (b) 26, 24
- (c) 26, 23

(d) 25, 23

**Answer:** C

## NIMCET 2021 English Questions

### 1. Question:

Fill in the blank with the most appropriate word:

The state Transportation Corporation has \_\_\_\_\_ a loss of 5 crore INR this year.

**Options:**

(a) derived

(b) incurred

(c) performed

(d) formulated

**Answer:** (b)

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### 2. Question:

Fill in the blank with the most appropriate word:

The \_\_\_\_\_ with which he can wield the paint-brush is remarkable.

**Options:**

(a) ease

(b) practice

(c) sweep

(d) gait

**Answer:** (a)

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### 3. Passage-Based Question:

**Read the passage below carefully and answer the question that follows:**

*It is said with truth that the function of a university is to prepare the young to take their place in human society. It must provide its members with the knowledge and skills necessary to make them efficient citizens. But is the whole duty of man exhausted by the acquisition of knowledge and professional training? Is a university only an institution for higher learning, a factory that churns out clerks and technicians able to run the machinery of the State? Mere knowledge which gratifies curiosity is different from culture which refines personality. Culture is not remembering a mass of serious details about the dates of birth of the great heroes of the world or the interesting names of the fastest ships that cross the Atlantic or entertaining odds and ends gathered from the latest who's who. A well-known institution of this country has for its*



*motto sa vidya yavimuchyate: that is, knowledge which is designed for salvation, for the development of the soul, is the best. Such an idea is not merely an Indian idiosyncrasy. Plato said long ago that the culture of the soul is "the first and fairest thing that the best of men can ever have." According to Goethe, the object of education is to form tastes and not simply to communicate knowledge. A man's culture is not judged by the amount of tabulated information that he has at his command but by the quality of mind that he brings to bear on the facts of life. Education is not cramming the mind with a host of technical details, putting sight, as it were, into blind eyes. The eye of the soul is never blind; only its gaze may be turned to the false and the fleeting. Too often the vision may be dragged downwards by the "leaden weights" of pride and prejudice, of passion and desire. The function of the teacher is not to add to the "leaden weights" but to remove them and liberate the soul from the encumbrance so that it may follow its native impulse to soar upwards. The student at a university does not merely learn something but becomes something by being exposed, in the most elastic period of his life, to transforming influences, such as the constant clash of mind with mind, the interchange of ideas, the testing of opinions, and the growth of knowledge of human nature.*

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**Question:**

What is the object of education according to Goethe?

**Options:**

- (a) It teaches social manners.
- (b) It teaches courtesy.
- (c) It communicates knowledge.
- (d) It forms tastes.

**Answer:** (d)