Eleventh Grade - Mathematical Reasoning

1) Which is logically equivalent to "If today is Sunday, Matt cannot play hockey."?

- Today is Sunday and Matt can play hockey
- Today is Sunday and Matt cannot play hockey
- If Matt plays hockey, then today is not Sunday
- Today is not Sunday if and only if Matt plays hockey

2) The statement "x > 5 or x

- 8
- 3
- 5
- 1

3) What is the truth value of "4 is even and 8 is odd."?

- 24
- False
- True
- Cannot be determined

4) The sentence " ____ if and only if x + x = 3x" is TRUE. Which of the following could be used to fill in the blank?

- 2x - x = 2x
- Neither 1 nor 2 could be used
- x + x = 2x
- Both 1 and 2 could be used

5) The inverse of the converse of a conditional statement is the _____.

- Converse
- Contra positive
- Inverse
- None of these

6) If Susan does not like spinach, what is the truth value of the statement "Susan likes ice cream and she like spinach."?

- Susan like pizza
- True
- False
- None of these

7) Which of the following is an open sentence?

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

8) It has two pairs of opposite sides parallel. Which of the following make this open sentence true?

- Trapezoid
- Rhombus
- Parallelogram
- Circle

9) Consider the sentence: x

- 7

- None of the these
- 9
- 4

10) If Deb and Sam go to the mall, then it is snowing. Which statement below is logically equivalent?

- If it is not snowing, then Deb and Sam do not go to the mall
- If it is snowing, then Deb and Sam go to the mall
- If Deb and Sam do not go to the mall, then it is not snowing
- If Deb and Sam do not go to the mall, them it is snowing

11) What is a mathematically acceptable statement?

- If it is false
- None of these
- If it is true
- If it is either true or false but not both

12) What kind of sentences are not statements?

- Exclamation
- Assertive
- Interrogation
- Conjunction

13) Check whether the sentence " 6 is less than 2 " is an

- Statement
- Not an statement
- Negative statement
- None of these

14) Check whether the sentence " The moon is a natural satellite of the earth " is an

- Negative statement
- None of these
- Statement
- Not an statement

15) Whether the sentence " Mathematics is interesting " is

- Not an statement
- If it is either true or false but not both
- If it is false
- None of these

16) Check whether the sentence " How far is Delhi from here? " is an

- If it is either true or false but not both
- None of these
- Not an statement
- If it is true

17) Check whether the sentence " There are 32 days in a month " is an

- Statement
- None of these
- If it is false
- If it is either true or false but not both

18) Check whether the sentence " The sum of 3 & 8 is greater than 11 " is an

- If it is either true or false but not both
- If it is false

- None of these
- Statement

19) Check whether the sentence " Square of a number is an even number " is an

- None of these
- If it is false
- Not an statement
- If it is either true or false but not both

20) Check whether the sentence " Today is a sunny day " is an

- If it is false
- Not an statement
- If it is true
- None of these

21) What is a mathematically acceptable statement?

- None of these
- Negative statement
- Statement
- Not an statement

22) Check whether the sentence " How beautiful the rose is ! " is an

- Statement
- None of these
- Not an statement
- Negative statement

23) What is negation of a statement?

- Collapsing of a statement
- None of these
- Denial of a statement
- Accepting of a statement

24) Write negation of the statement " Jaipur is a city? "

- None of these
- Jaipur is a city
- Jaipur is not a city
- None other than Jaipur is a city

25) Write negation of the statement " Opposite sides of a rectangle have same length? "

- Opposite sides of a rectangle have same length
- Opposite sides of a rectangle do not have same length
- None other than Opposite sides of a rectangle have same length
- None of these

26) Write negation of the statement " V a, b ? I,a - b ? I "

- V a,b ? I,a - b belong toI
- None of these
- None other than V a, b ? I, a - b belong to I
- V a,b ? I,a - b does not belong toI

27) Write negation of the statement " 6 is irrational? "

- Is not rational
- 6 is not irrational
- 6 is irrational
- Is rational

28) When is a compound statement with connective ‘and’ is true?

- If it is either true or false but not both
- If all its component statements are true
- If it is false
- None of these

29) When is a compound statement with connective ‘and’ is false?

- If it is either true or false but not both
- If all its component statements are false
- If it is false
- None of these

30) When is a compound statement with connective ‘or’ true?

- Both
- Both the component statements are true
- It is true when one atleast one component statement is true
- None of these