1. Which of the following proposition is tautology
2. $(p∨q)\rightarrow q$ b) $p∨(q\rightarrow p)$ c) $p∨(p\rightarrow q)$ d) Both (b) & (c)
3. Which of the following is/are tautology?
4. a v b → b ^ c b) a ^ b → b v c c) a v b → (b → c) d) None of these
5. Which of the following is a declarative statement?
6. It's right b) He says c) Two may not be an even integer d) I love you
7. P → (Q → R) is equivalent to
8. (P ^ Q) → R b) (P v Q) → R c) (P v Q) → ˥R d) None of these
9. (P v Q) ^ (P → R )^ (Q →S) is equivalent to
10. S ^ R b) S → R c) S v R d) All of above
11. Which of the following is FALSE?
12. ((x → y)^ x) →y b) ((~x →y)^ ( ~x ^ ~y))→y c) (x → ( x v y)) d) ((x v y) ↔( ~x v ~y))
13. Which of the following statement is TRUE?
14. ∀x P(x) ⇔ $\~(∃x \~p\left(x\right))$ b) ∃x P(x) ⇔ $\~$∀x P(x) c) ∀x P(x) ⇔ $∃x \~p(x)$ d) None of these
15. $\~(p\leftrightarrow q)$ is logically equivalent to
16. $p\leftrightarrow \~q$ b) $\~p\leftrightarrow q$ c) $\~p\leftrightarrow \~q$ d) None of these
17. If the universe of discourse is set of real number, then which of the following statement is true
18. $∀x (x^{2}>0)$ b) $∃x (x^{2}=-1)$ c) $∀x (x=x+1)$ d) None of these
19. Consider the following two statements

S1: If a candidate is known to be corrupt, then he will not be elected.

S2: If a candidate is kind, then he will be elected.

Which one of the following statements follows from S1 and S2 as per sound inference rules of logic?

1. If a person is known to be corrupt, he is kind.
2. If a person is not known to be corrupt, he is not kind.
3. If a person is kind, he is not known to be corrupt.
4. If a person is not kind, he is not known to be corrupt.
5. Consider the following logical inferences.

A: If it rains, then cricket match will not be played.

The cricket match was played.

Inference: There was no rain.

B: If it rains then the cricket match will not be played

It did not rain.

Inference: The cricket match was played.

 Which of the following is true:

a) Both A and B are correct inferences

b) A is correct but B is not correct

c) A is not correct but B is correct

d) Both A and B are not Correct

 12) The symbolization for a conjunction is...

 a) p → q
b) *p* $∧$ *q*
 c) p v q
 d) ~ *p*

1. In a conditional statement, the first part is the antecedent and the second part is the...
2. Predicate b) Consequent c) Disjunct d) Subject
3. The four logical connectives are….
4. Conjunctions, conditionals, compounds, and disjunctions
5. Conjunctions, statements, disjuncts, and conditionals
6. Conditionals, disjunctions, negations, and conjunctions
7. Conjuncts, disjuncts, conditionals, and negations
8. A conditional is false only when the antecedent is…
9. True and the consequent is false
10. False and the consequent is false
11. True and the consequent is true
12. False and the consequent is true
13. It is impossible for a valid argument to have true premises and…
14. A true conclusion
15. A negated conclusion
16. A conditional
17. A false conclusion
18. Relations may exist between?

A. objects of the same set
B. between objects of two or more sets.
C. Both A and B
D. None of the above

1. For two distinct sets, A and B, having cardinalities m and n respectively, the maximum cardinality of a relation R from A to B is?

A. m+n
B. m\*n
C. m^n
D. None of the above

1. The \_\_\_\_\_\_ Relation between sets X and Y is the set X×Y

A. Empty
B. Full
C. Identity
D. Inverse

1. A relation R on set A is called \_\_\_\_\_\_\_\_\_ if xRy implies yRx.

A. Irreflexive
B. Reflexive
C. Anti-Symmetric
D. Symmetric

1. The binary relation {(1,1), (2,1), (2,2), (2,3), (2,4), (3,1), (3,2)} on the set {1, 2, 3} is \_\_\_\_\_\_\_\_\_\_

A. reflective, symmetric and transitive
B. irreflexive, symmetric and transitive
C. transitive
D. antisymmetric

1. A binary relation R on a single set A is a subset of?

A. A X A
B. A % A
C. A ^ A
D. A ? A

1. The symbolisation for exclusive or is

a) $⨁$ b) $\leftarrow $ c) $\leftrightarrow $ d) $∨$

1. What is the negation of $∼∀x p(x)$
2. $∃x p(x)$ b) $∃x \~p(x)$ c) $∀x \~p(x)$ d) None of these
3. DeMorgan's Law. In any statement, you may substitute:
4.  for  .
5.  for  .
6.  for  .
7.  for 
8. What is the logical equivalent of the statement $p\leftrightarrow q$
9. $\~p\leftrightarrow \~q$ b) $\~p\rightarrow q$ c) $q\leftrightarrow \~p$ d) None of these
10. The implication statement is equivalent to
11. Inverse b) converse c) contrapositive d) None of these
12. Identify the valid conclusion from the premises Pv Q, Q → R, P → M, $\~$M
13. P ^ (R v R) b) P ^ (P ^ R) c) R ^ (P v Q) d) Q ^ (P v R)
14. (P v Q) ^ (P→R) ^ (Q → R) is equivalent to
15. P b) Q c) R d) T
16.
17. Which of the following proposition is tautology
18. $(p∨q)\rightarrow q$ b) $p∨(q\rightarrow p)$ c) $p∨(p\rightarrow q)$ d) Both (b) & (c)

$$A=\left\{1,2,3\right\}, B=\{a,b,c,d\}$$

$$R⊆A×B=\{\left(1,a\right),\left(1,b\right),\left(1,c\right),\left(1,d\right),\left(2,a\right),\left(2,b\right),…\}$$

$$R\_{1}=\{\left(1,a\right),(2,a)\}$$

$$R\_{2}=\{\left(1,a\right),\left(2,c\right),(3,b)\}$$

$$R\_{2}^{-1}=\{\left(a,1\right),\left(c,2\right),\left(b,3\right)\}$$

$$R\_{2}∩R\_{2}^{-1}=∅$$