Total No. of Questions : 25 **Test Name: DM-20-08-2018**

SITRC

SE Computer Examination , Aug 2018

DM_2018

Time : 60 Min **Passing Marks : 12** **Maximum Marks : 30**

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1. A proof that $p \rightarrow q$ is true based on the fact that q is true, such proofs are known as (1)

   A) Direct proof
   B) Contrapositive proofs
   C) Trivial proof
   D) Proof by cases

2. $p \wedge q$ is logically equivalent to: (1)

   A) $\neg (p \rightarrow \neg q)$
   B) $(p \rightarrow \neg q)$
   C) $(\neg p \rightarrow \neg q)$
   D) $(\neg p \rightarrow q)$

3. Which of the following bits is the negation of the bits "010110"? (1)

   A) 111001
   B) 001001
   C) 101001
   D) 111111

4. Let R (x) denote the statement "x > 2." What is the truth value of the quantification $\exists x R(x)$, having the domain as real numbers? (1)

   A) True
   B) False

5. Negation of statement $(A \wedge B) \rightarrow (B \wedge C)$ (1)

   A) $(A \wedge B) \rightarrow (\sim B \wedge \sim C)$
   B) $\sim(A \wedge B) \vee (B \vee C)$
   C) $\sim(A \rightarrow B) \rightarrow (\sim B \wedge C)$
   D) None of the mentioned

6. $(p \rightarrow r) \vee (q \rightarrow r)$ is logically equivalent to: (1)

   A) $(p \wedge q) \vee r$
   B) $(p \vee q) \rightarrow r$
   C) $(p \wedge q) \rightarrow r$
   D) $(p \rightarrow q) \rightarrow r$

7. What is the negation of the statement A->(B v(or) C)? (1)

A) A ∧ ~B ∧ ~C
B) A->B->C
C) ~A ∧ B v C
D) None of the mentioned

8. If P is always against the testimony of Q ,then the compound statement P→(P v ~Q) is a (1)

A) Tautology
B) Contradiction
C) Contingency
D) None of the mentioned

9. The Ex-nor of this string "01010101"with "11111111" is (1)

A) 10101010
B) 00110100
C) 01010101
D) 10101001

10. The statement which is logically equivalent to A∧ (and) B is (1)

A) A->B
B) ~A ∧ ~ B
C) A ∧ ~B
D) ~(A->~B)

11. What are the converse of the conditional statement "When Raj stay up late, it is necessary that Raj sleep until noon." (1)

A) "If Raj stay up late, then Raj sleep until noon."
B) "If Raj does not stay up late, then Raj does not sleep u
C) "If Raj does not sleep until noon, then Raj does not stay up late."
D) "If Raj sleep until noon, then Raj stay up late."

12. A → (A ∨ q) is a _____ (1)

A) Tautology
B) Contradiction
C) Contingency
D) None of the mentioned

13. ¬ (p ↔ q) is logically equivalent to: (1)

A) q↔p
B) p↔¬q
C) ¬p↔¬q
D) ¬q↔¬p

14. Let P: I am in Delhi. , Q: Delhi is clean. ; then q ^ p(q and p) is: (1)

A) Delhi is clean and I am in Delhi
B) Delhi is not clean or I am in Delhi
C) I am in Delhi and Delhi is not clean
D) Delhi is clean but I am in Mumbai

15. **Which of the following statements is the negation of the statements "4 is odd or -9 is positive"?** (1)

A) 4 is even or -9 is not negative
B) 4 is odd or -9 is not negative
C) 4 is even and -9 is negative
D) 4 is odd and -9 is not negative

16. Which of the following option is true? (1)

A) If the Sun is a planet, elephants will fly
B) 3 +2 = 8 if 5-2 = 7
C) 1 > 3 and 3 is a positive integer
D) -2 > 3 or 3 is a negative integer

17. Let P and Q be statements, then P<->Q is logically equivalent to (1)

A) **P<->~Q**
B) **~P<->Q**
C) **~P<->~Q**
D) None of the mentioned

18. **p ∨ q is logically equivalent to:** (1)

A) **¬q → ¬p**
B) **q → p**
C) **¬p → ¬q**
D) **¬p → q**

19. **"Everyone wants to learn cosmology." This argument may be true for which domains?** (1)

A) All students in your cosmology class
B) All the cosmology learning students in the world
C) Both of the mentioned
D) None of the mentioned

20. Power set of empty set has exactly _____ subset. (1)

A) One
B) Two
C) Zero
D) Three

21. **Let P: This is a great website, Q: You should not come back here.** (2)
Then 'This is a great website and you should come back here.' is best represented by:

A) **~P V ~Q** B) **P ∧ ~Q**

C) P V Q D) **P ∧ Q**

22. **Let the statement be "If n is not an odd integer then square of n is not odd.",then if P(n) is "n is n** (2)
not an odd integer" and Q(n) is "(square of n) is not odd." For a direct proof we should proove

A) **∀nP ((n) → Q(n))** B) **∃ nP ((n) → Q(n))**

C) **∀n~(P ((n)) → Q(n))** D) **∀nP ((n) → ~(Q(n)))**

23. Let P:If Sahil bowls, Saurabh hits a century. ,Q: If Raju bowls , Sahil gets out on first ball. (2)
Now if P is true and Q is false then which of the following can be true?

A) Raju bowled and Sahil got out on first ball B) Raju did not bowled

C) Sahil bowled and Saurabh hits a century D) Sahil bowled and Saurabh got out

24. **What are the inverse of the conditional statement "If you make your notes, it will be a convenient in** (2)
exams."

A) **"If you make notes, then it will be a convenient in exams."** B) **"If you do not make notes, then it will not be a convenie**

C) **"If it will not be a convenient in exams, then you did not make your notes"** D) **"If it will be a convenient in exams, then you make your**

25. **Let T (x, y) mean that student x likes dish y, where the domain for x consists of all students at your** (2)
school and the domain for y consists of all dishes. Express ¬T (Amit, South Indian) by a simple English sentence.

A) All students does not like South Indian dishes. B) Amit does not like South Indian people.

C) Amit does not like South Indian dishes. D) Amit does not like some dishes.