



MATHS

BOOKS - MODERN PUBLICATION

MATHS (KANNADA ENGLISH)

MATHEMATICAL REASONING

Multiple Choice Questions Level I

1. Which of the following is a statement.

- A. x is a real number
- B. Switch off the fan
- C. 6 is a natural number
- D. Let me go

Answer: C



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2. Which of the following is a statement ?

- A. Roses are black

B. Mind your own business

C. Be punctual

D. Do not tell lies

Answer: A



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3. Which of the following is not a statement :

A. Smoking is injurious to health

B. $2 + 2 = 4$

C. 2 is the only even prime number

D. Come here

Answer: D



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4. The connective in the statement

$2 + 7 > 9$ or $2 + 7 < 9$ is

A. and

B. or

C. >

D. <

Answer: B



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5. The connective in the statement "Earth revolves round the Sun and Moon is a satellite of earth " is

A. or

B. Earth

C. Sun

D. and

Answer: D



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6. The negation of the statement “A circle is an ellipse” is -

A. An ellipse is a circle

B. An ellipse is not a circle

C. A circle is not an ellipse

D. A circle is an ellipse

Answer: C



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7. The negation of the statement "it is raining and weather is cold" is

A. It is not raining and weather is cold

B. It is raining or weather is not cold

C. It is not raining or weather is not cold

D. It is not raining and weather is not cold

Answer: C



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8. The negative of the statement "7 is greater than 8" is

A. 7 is equal to 8

B. 7 is not greater than 8

C. 8 is less than 7

D. none of these

Answer: B



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9. The negation of the statement "72 is divisible by 2 and 3" is

A. 72 is not divisible by 2 or 72 is not divisible by 3

B. 72 is not divisible by 2 and 72 is not divisible by 3

C. 72 is divisible by 2 and 72 is not divisible by 3

D. 72 is not divisible by 2 and 72 is divisible by 3

Answer: A



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10. The negation of the statement "Plants take in CO_2 and give out O_2 and give out O_2 " is

A. Plants do not take in CO_2 and do not give out O_2

B. Plants do not take in CO_2 or do not give out O_2

C. Plants take in CO_2 and do not give out O_2

D. Plants take in CO_2 or do not give out O_2

Answer: B



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11. The negative of the statement "Rajesh or Rajni lived in Bengaluru" is

A. Rajesh did not live in Bangalore or Rajni lives in Bangalore

B. Rajesh lives in Bangalore and Rajni did not live in Bangalore

C. Rajesh did not live in Bangalore and

Rajni did not live in Bangalore

D. Rajesh did not live in Bangalore or Rajni

did not live in Bangalore

Answer: C



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12. The negation of the statement "101 is not multiple of 3" is

- A. 101 is a multiple of 3
- B. 101 is a multiple of 2
- C. 101 is an odd number
- D. 101 is an even number

Answer: A



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13. The contrapositive of the statement :

"If 7 is greater than 5, then 8 is greater than 6"

is :

A. If 8 is greater than 6, then 7 is greater than 5

B. If 8 is not greater than 6, then 7 is greater than 5

C. If 8 is not greater than 6, then 7 is not greater than 5

D. If 8 is greater than 6, then 7 is not greater than 5

Answer: C



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14. The converse of the statement "If $x > y$, then $x + a > y + a$ " is

A. If $x < y$, then $x + a < y + a$

B. If $x + a > y + a$, then $x > y$

C. If $x < y$, then $x + a > y + a$

D. If $x > y$, then $x + a < y + a$

Answer: B



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15. The converse of the statement "If sun is not shining, then sky is filled with clouds " is

A. If sky is filled with clouds, then the sun is not shining

B. If sun is shining, then sky is filled with clouds

C. If sky is clear, then sun is shining

D. If sun is not shining, then sky is not filled with clouds.

Answer: A



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16. Which of the following is the converse of the statement : "If Billu secures good marks, then he will get a bicycle".

A. If Billu will not get a bicycle, then he will not secure good marks

B. If Billu will get a bicycle, then he will secure good marks

C. If Billu will get a bicycle, then he will not secure good marks

D. If Billu will not get a bicycle, then he will secure good marks

Answer: B



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17. The contrapositive of the statement "If p , then q ", is

A. If q , then p

B. If p , then $\sim p$

C. If $\sim q$, then $\sim p$

D. If $\sim p$, then $\sim q$

Answer: C



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18. The statement "If x^2 is not even, then x is not even" is converse of the statement

A. If x^2 is odd, then x is even

B. If x is not even, then x^2 is not even

C. If x is even, then x^2 is even

D. If x is odd, then x^2 is even

Answer: B



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19. The contrapositive of statement 'If Chandigarh is capital of Punjab , them chandigarh is in India is

- A. If Chandigarh is not in India, then
Chandigarh is not the capital of Punjab
- B. If Chandigarh is in India, Chandigarh is
capital of Punjab
- C. If Chandigarh is not capital of Punjab,
then Chandigarh is not capital of India
- D. If Chandigarh is capital of Punjab, then
Chandigarh is not in India

Answer: A



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20. Which of the following is the conditional

$$p \rightarrow q?$$

A. q is sufficient for p

B. p is necessary for q

C. p only if q

D. if q , then p

Answer: C



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21. The negative of the statement "The product of 3 and 4 is 9" is

A. It is false that the product of 3 and 4 is 9

B. The product of 3 and 4 is 12

C. The product of 3 and 4 is not 12

D. It is false that the product of 3 and 4 is
not 9

Answer: A



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22. Write the negation of "Every natural number is greater than zero".

A. A natural number is not greater than zero

B. It is false that a natural number is greater than zero

C. It is false that a natural number is not greater than zero

D. None of the above

Answer: C



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23. Which of the following statement is a conjunction?

- A. Ram and Shyam are friends
- B. Both Ram and Shyam are tall
- C. Both Ram and Shyam are enemies
- D. None of the above

Answer: D



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24. If p and q be two statement, then the conditional statement $p \rightarrow q$ is false, when :

- A. p is true and q is true
- B. p is false and q is true
- C. p is true and q is false
- D. none of these

Answer: C



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25. If p and q be two statement, then the Bioconditional statement $p \Leftrightarrow q$ is true only when :

- A. p is true and q is false
- B. p is false and q is true
- C. p and q are both true or both false
- D. none of these

Answer: C



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26. If p : Sham is honest, q : Sham will pass, then the statement 'either Sham is honest or he will pass', is written in symbols as :

A. $p \wedge q$

B. $p \wedge \sim q$

C. $p \vee q$

D. none of these

Answer: C



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27. Which of the following statements are true statements :

A. Moon is a heavenly body

B. $7 \times 5 + 4 = 40$

C. Today is Monday

D. Is Sham a honest boy ?

Answer: A



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28. $\sim(p \wedge q) =$

A. $\sim p \wedge q$

B. $\sim p \wedge \sim q$

C. $\sim p \vee \sim q$

D. none of these

Answer: C



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29. $\sim(p \vee q)$ is equal to-

A. $\sim p \wedge q$

B. $\sim p \vee \sim q$

C. $\sim p \wedge \sim q$

D. none of these

Answer: C



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30. The simplified form of $(p \wedge q) \vee (p \wedge r) =$

A. $p \vee (q \wedge r)$

B. $p \wedge (q \vee r)$

C. $(p \vee q) \wedge r$

D. none of these

Answer: C



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31. $(p \vee r) \wedge (q \vee r) =$

A. $p \vee (q \wedge r)$

B. $p \wedge (q \vee r)$

C. $(p \wedge q) \vee r$

D. none of these

Answer: C



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32. $p \rightarrow q =$

A. $(\sim p) \vee q$

B. $p \wedge (\sim q)$

C. $\sim p \vee \sim q$

D. none of these

Answer: A



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33. $\sim(p \rightarrow q) =$

A. $(\sim p) \vee q$

B. $\sim p \wedge (\sim q)$

C. $p \wedge (\sim q)$

D. none of these

Answer: C



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1. If p : 'Sham is honest', q : 'Sham will pass', then the statement "It is not true that Sham is not honest or will not pass", is written in symbols as :

A. $p \wedge \sim q$

B. $\sim p \wedge q$

C. $\sim(\sim p \vee \sim q)$

D. none of these

Answer: C



2. If p and q stand for the following statements p : Monsoon is very good this year, q : The rivers are rising.

The statement

"Neither the monsoon is very good this year nor the rivers are rising", can be written in symbols as :

A. $p \wedge \sim q$

B. $\sim p \wedge \sim q$

C. $p \vee q$

D. $\sim p \vee q$

Answer: B



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3. If the statement be p : It is raining, q : It is pleasant, then the statement :

"It is either raining or not raining and pleasant, can be expressed in symbols as :

A. $\sim(\sim p \vee \sim q)$

B. $p \vee \sim p \wedge q$

C. $\sim p \wedge \sim q$

D. none of these

Answer: B



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4. If the statement be p : It is raining, q : It is pleasant, then the statement :

"It is neither raining nor pleasant' can be expressed in symbols as :

A. $p \vee \sim q \wedge q$

B. $\sim p \wedge \sim q$

C. $p \rightarrow q$

D. none of these

Answer: B



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5. The simplified form of $(p \wedge q) \vee (p \wedge r) =$

A. $p \vee (q \wedge r)$

B. $p \wedge (q \vee r)$

C. $(p \vee q) \wedge r$

D. none of these

Answer: A



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6. Construct the truth table for the statement pattern $(p \vee q) \wedge (p \vee r)$. Interpret the result.

A. $p \vee (q \wedge r)$

B. $p \wedge (q \vee r)$

C. $(p \vee q) \wedge r$

D. none of these

Answer: D



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7. If p and q are two logical statements, then

$p \Rightarrow (q \Rightarrow p)$ is equivalent to

A. $p \rightarrow (p \Leftrightarrow q)$

B. $p \rightarrow (p \rightarrow q)$

C. $p \rightarrow (p \vee q)$

D. $p \rightarrow (p \wedge q)$

Answer: C



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1. Let S be a non-empty subset of \mathbb{R} . Consider the following statement: P : There is a rational number $x \in S$ such that $x > 0$. Which of the following statements is the negation of the statement P ?

There is no rational number $x \in S$ such that $x \leq 0$ (9)

Every rational number $x \in S$ satisfies $x \leq 0$ (18)

$x \in S$ and $x \leq 0 \Rightarrow x$ (27) is not rational

There is a rational number $x \in S$ such that $x \leq 0$ (36)

A. There is a rational number $x \in S$ such that $x \leq 0$

B. There is no rational number $x \in S$ such that $x \leq 0$

C. Every rational number $x \in S$ satisfies $x \leq 0$

D. $x \in S$ and $x \leq 0 \Rightarrow x$ is not rational

Answer: C



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2. Consider the following statements

P: Suman is brilliant

Q: Suman is rich

R: Suman is honest

The negation of the statement "Suman is brilliant and dishonest if and only if Suman is rich" can be expressed as

A. $\sim P \wedge (Q \Leftrightarrow \sim R)$

B. $\sim(Q \Leftrightarrow (P \wedge \sim R))$

C. $\sim Q \Leftrightarrow \sim P \wedge R$

D. $\sim(P \wedge \sim R) \Leftrightarrow Q$

Answer: B



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3. The only statement among the following that is a tautology is

A. $A \wedge (A \vee B)$

B. $A \vee (A \wedge B)$

C. $[A \wedge (A \rightarrow B)] \rightarrow B$

D. $B \rightarrow [A \wedge (A \rightarrow B)]$

Answer: C



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4. The negation of the statement

"If I becomes a teacher, then I will open a school", is

A. I will become a teacher and I will not open a school

B. Either I will not become a teacher or I will not open a school

C. Neither I will become a teacher nor I will
open a school

D. I will not become a teacher or I will open
a school

Answer: A



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5. The statement $\sim(p \leftrightarrow \sim q)$ is

A. equivalent to $\sim p \Leftrightarrow q$

B. a tautology

C. a fallacy

D. equivalent to $p \Leftrightarrow q$

Answer: D



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6. The negation of $\sim s \vee (\sim r \wedge s)$ is equivalent to

A. $s \wedge \sim r$

B. $s \wedge (r \wedge \sim s)$

C. $s \vee (r \vee \sim s)$

D. $s \wedge r$

Answer: D



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Questions From Karnataka Cet Comed

1. If $p \rightarrow (q \vee r)$ is false, then the truth values of p,q,r are respectively

A. T, F, F

B. F, F, T

C. F, T, T

D. T, T, F

Answer: A



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2. The logically equivalent proposition of

$p \leftrightarrow q$ is

A. $(p \wedge q) \vee (p \wedge q)$

B. $(p \Rightarrow q) \wedge (q \Rightarrow q)$

C. $(p \wedge q) \vee (q \Rightarrow p)$

D. $(p \wedge q) \Rightarrow (p \vee q)$

Answer: B



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3. Let p be the proposition that Mathematics is interesting and q be the proposition that

Mathematics is difficult, then the symbol $p \wedge q$

means

A. Mathematics is interesting implies that

Mathematics is difficult

B. Mathematics is interesting implies and is

implied by Mathematics is difficult

C. Mathematics is interesting and

Mathematics is difficult

D. Mathematics is interesting or

Mathematics is difficult

Answer: C



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4. The false statement in the following is

A. $p \wedge (\sim p)$ is a contradiction

B. $(p \Rightarrow q) \Leftrightarrow (\sim q \Rightarrow \sim p)$ is a
contradiction

C. $\sim(\sim p) \Leftrightarrow p$ is a tautology

D. $p \vee (\sim p)$ is a tautology

Answer: B



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5. If $p \rightarrow (\sim p \vee q)$ is false, then the truth values of p and q are respectively

A. F, T

B. F, F

C. T, T

D. T, F

Answer: D



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6. Which of the following is not a proposition ?

A. $\sqrt{3}$ is a prime

B. $\sqrt{2}$ is a prime

C. Mathematics is interesting

D. 5 is an even integer

Answer: C



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7. $(p \wedge \sim q) \vee (\sim p \wedge q)$ is :

A. tautology

B. a contradiction

C. both a tautology and a contradiction

D. neither a tautology nor a contradiction

Answer: B



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8. Which of the following is not a correct statement?

A. $\sqrt{3}$ is a prime

B. The sun is a star

C. Mathematics is interesting

D. $\sqrt{2}$ is irrational

Answer: A



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9. $\sim[(\sim p) \wedge q]$ is logically equivalent to :

A. $p \vee (\sim q)$

B. $p \wedge (\sim q)$

C. $\sim[p \wedge (\sim q)]$

D. $\sim(p \vee q)$

Answer: A



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