Q.1

The forms $\frac{0}{0}$ *and* $\frac{\infty}{\infty}$ *are known as*

(a) Cauchy's Forms

(b) Lagrange's Forms

(c) L'Hospital Forms

(d) Fundamental Indeterminate Forms

Q.2

4. Find $\lim_{x \to 0}\left(\frac{ln(1+x^4)}{x}\right)$

a) 1

b) -1

c) 0

d) Undefined

Q.3

5. Find $lt_{x \to 0}\left(\frac{1}{sin^2(x)}\right)$

a) 2

b) 1

c) 0

d) Undefined

Q.4

13. Find $lt_{x \to 0} \frac{sin(sin(x))}{x}$

a) 1

b) ∞

c) 0

d) -1

Q.5

1. Find $\lim_{x \to \infty} \left(1 + \frac{1}{x^2+2x+1}\right)^{x^2+3x+1}$

a) e

b) 1

c) e^2

d) $1/e$

Q.6

$\lim_{x \to 0} \frac{\tan x}{x} =$

(a) 1

(b) 0

(c) -1

(d) ∞

Q.7

$$\lim_{x \to 0} \frac{e^x - e^{-x} - 2x}{x - \sin x} =$$

(a) 1

(b) -2

(c) 2

(d) None of these

Q.8

The value of α so that $\lim_{x\to 0} \frac{e^{ax}-e^{x}-x}{x^2} = \frac{3}{2}$

(a) 1 **(b) 2**

(c) −2 **(d) 0**

Q.9

$\lim_{x \to 0} x \sin \frac{1}{x} =$

(a) 1

(b) 0

(c) -1

(d) ∞

Q.10

$$\lim_{x \to \infty} \frac{x - \sin x}{x} =$$

(a) 1

(b) 0

(c) -1

(d) 2

Q.11

$$\lim_{x \to 0} x \tan \frac{1}{x} =$$

(a) -1

(b) 0

(c) 1

(d) 2

Q.12

$$\lim_{x \to 0} \left(\frac{\sin x}{x}\right)^{\frac{1}{x}} =$$

(a) -1

(b) 0

(c) 1

(d) 1/2

Q.13

$\lim_{x \to 0} (\sin x)^{\tan x} =$

(a) 1

(b) -1

(c) 2

(d) 0

Q.14

$\lim_{x \to 0} \left(\frac{1}{x^2}\right)^{\tan x} =$

(a) -1

(b) 2

(c) $1/2$

(d) 1

Q.15

10) $\lim_{x \to 0} \frac{\sec x - \cos x}{x^2} =$

(A) 0 (B) $\frac{1}{2}$ (C) 1 (D) 2 (E) none of these

Q.16

7) $\lim_{x \to 0} \frac{\sin(3x)}{\sin(4x)} =$

(A) 1 (B) $\frac{4}{3}$ (C) $\frac{3}{4}$ (D) 0 (E) nonexistent

Q.17

4) $\lim_{x \to 0} \frac{\cos x - 1}{x} =$

(A) -1 (B) 0 (C) 1 (D) ∞ (E) none of these

MCQs of Group Theory

1. This is an abelian group { – 3 n : n ε Z } under?

A. division
B. subtraction
C. addition
D. multiplication

2. What is the inverse of – ι If G = { 1, -1, i, -i} is group under multiplication?

A. −1
B. i
C. 1
D. None of Above

3. The monoid is a?

A. a non-abelian group

B. groupoid

C. A group

D. a commutative group

4. (ba)^-1 =_____ If a, b are elements of a group G?

A. b^-1. a

B. a^-1 .b

C. b^-1. a^-1

D. a^-1. b^-1

5. What is an inverse of – i in the multiplicative group if {1, – 1, i , – i} is?

A. -1

B. 1

C. i

D. None of these

6. What is the value of (a- 1 b)- 1 is in the group (G, .)?

A. b- 1a

B. ab-1

C. ba-1

D. a-1b

7. What is the inverse of an if (Z,*) is a group with a*b = a+b+1 ∀ a, b ∈Z?

A. -2

B. 0

C. –a-2

D. a-2

8. Which sentence is true?

A. Set of all matrices forms a group under multiplication

B. Set of all rational negative numbers forms a group under multiplication

C. Set of all non-singular matrices forms a group under multiplication

D. Both (b) and (c)

9. Which statement is false?

A. The set of rational integers is an abelian group under addition

B. The set of rational numbers form an abelian group under multiplication

C. The set of rational numbers is an abelian group under addition

D. None of these

10. What is the identity element In the group

G = {2, 4, 6, 8) under multiplication modulo 10?

A. 5
B. 9
C. 6
D. 12

If H and K are subgroups of G, then

A. HUK is a subgroup but $H \cap K$ may not be a subgroup.
B. $H \cap K$ is a subgroup but HUK may not be a subgroup.
C. Either (a) or (b).
D. None of the above.

In the additive group G of integers, the order of inverse element a^{-1}, $a \in G$ is

A.zero

B.one

C.infinity

D.None of these

QUESTION:

If G is a finite group, then for every a ∈ G, the order o f a is

A.finite

B.infinite

C.zero

D.None of these

If the order of elements a, $a^{-1} \in G$ are m and n respectively, then

A. $m = n$
B. $m \neq n$
C. $m = n = 0$
D. None of these

QUESTION:

A one-one mapping of a finite group onto itself is

A.isomorphism

B.homomorphism

C.automorphism

D.None of these

THANK YOU