UNITY TRAINING
ACADEMY FOR DDCET

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Practice Set 4 Solution

Function & LIMIT

Topics :

1. Function and simple examples
2. Limit of a Function
3. Standard formulae of Limit and related simple examples

DDCET final exam weightage of this topic : 3 Questions (6 Marks)

Total Practice sets of this topic :	5 (sets) x 30 (questions) = 150 Questions
Total Practice tests of this topic :	2 (exams) x 30 (questions) = 60 Questions
Offline / Online during lecture :	4 (lectures) X 50 (Questions) = 200 Question

DDCET 2025

Total 410 Questions to practice this topic

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Section 2 :

1. Function and simple examples
2. Limit of a Function
3. Standard formulae of Limit and related simple examples

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

   a. 1 ✓
   b. 0
   c. ∞
   d. does not exist

2. $\lim_{x\to \infty}\left({}^{1}/_{x}\right) =$

   a. ∞
   b. 1
   c. 0 ✓
   d. -∞

3. $\lim_{x\to 0}\left(\frac{1-\cos x}{x^2}\right) =$

   a. 0
   b. 1
   c. 1/2 ✓
   d. ∞

4. $\lim_{x\to a}\left(\frac{x^2-a^2}{x-a}\right) =$

   a. 2a ✓
   b. a
   c. a^2
   d. 0

5. $\lim_{x\to 0}\left(\frac{\tan x}{x}\right) =$

   a. 0
   b. 1 ✓
   c. ∞
   d. does not exist

Section 2 :

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6. $\lim_{x\to 0}\left(\frac{e^x-1}{x}\right)$ =

a. 0
b. 1 ✓
c. e
d. ∞

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

a. ∞ ✓
b. 1
c. 0
d. does not exist

8. $\lim_{x\to 2}\left(\frac{x^2-4}{x-2}\right)$ =

a. 2
b. 3
c. 4 ✓
d. 6

9. $\lim_{x\to 0}\frac{x}{|x|}$ =

a. 1
b. -1
c. does not exist ✓
d. 0

10. $\lim_{x\to \infty}\left(\frac{3x^2+5}{x^2+2}\right)$ =

a. 1
b. 3 ✓
c. ∞
d. 0

Section 2 :

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11. $\lim_{x\to 0} \frac{\sin 2x}{x} =$

a. 2 ✓
b. 1
c. 1/2
d. 0

12. $\lim_{x\to 0} \frac{\cos 4x}{x} =$

a. 2
b. 3
c. 4
d. does not exist ✓

13. $\lim_{x\to 0} \frac{2^x-1}{x} =$

a. ln2 ✓
b. $\log_2 e$
c. 1
d. 0

14. $\lim_{x\to 0} \frac{7^x-1}{x} =$

a. $\log_{10} 7$
b. $\log_e 7$ ✓
c. 1
d. 0

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15. $\lim_{n\to\infty}\left(1+\frac{1}{n}\right)^n =$

a. 0
b. 1
c. e ✓
d. ∞

16. $\lim_{x\to 2}\frac{x^5-32}{x-2} =$

a. 80 ✓
b. 160
c. 40
d. 0

17. $\lim_{x\to 0}\frac{a^x-1}{x}$ where a > 0 =

a. 1
b. $\log_e$ a ✓
c. a
d. 0

18. $\lim_{x\to 0+}$ ln(x) =

a. 0
b. ∞
c. -∞ ✓
d. undefined

Section 2 :

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19. $\lim_{x\to 0+}\left(\frac{x+1}{x}\right)$ =

a. 1
b. 0
c. ∞ ✓
d. 2

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

a. 0
b. ∞ ✓
c. -∞
d. does not exist

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

a. 1
b. 2
c. 3
d. 1/3 ✓

22. $\lim_{x\to\infty}\left(\frac{2x^2+5x-6}{4x^2+4x-3}\right)$ =

a. 1
b. 1/2 ✓
c. 2/5
d. 0

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23. $\lim_{x\to 0}(x \cdot \tan x)$ =

a. 0 ✓
b. 1
c. ∞
d. does not exist

24. $\lim_{x\to 0}\left(\frac{10^x-5^x}{x}\right)$ = _____. [DDCET-2024]

a. $log_e\left(\frac{1}{2}\right)$
b. $log_e(10)$
c. $log_e(5)$
d. $log_e(2)$ ✓

25. $\lim_{n\to \infty}\left(\frac{3n^2-11n-13}{(4n-5)(7-6n)}\right)$ = _____. [DDCET-2024]

a. $\frac{1}{4}$
b. $-\frac{1}{8}$ ✓
c. $\frac{1}{6}$
d. $-\frac{1}{4}$

26. $\lim_{x\to 0}(\sec^2 x - \tan^2 x)$ =

a. 1 ✓
b. -1
c. 0
d. $\frac{\pi}{2}$

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27. $\lim_{n\to\infty}\left(\frac{4n^2+5n-1}{2n^2+3n+7}\right)$ = _____.

a. 0
b. 2 ✓
c. 1
d. ∞

28. $\lim_{x\to 0}\left(\frac{e^{3x}-e^{2x}}{x}\right)$ = _____.

a. 1 ✓
b. $e^3 - e^2$
c. -1
d. 0

29. $\lim_{x\to 0}\frac{\sin x^0}{x}$ =

a. 1
b. 0
c. $\frac{\Pi}{180}$ ✓
d. $\frac{180}{\Pi}$

30. $\lim_{x\to 0}\frac{\sin^2 x+x^2\cdot\cos^2 x}{x^2}$ =

a. 1
b. 1/2
c. 0
d. 2 ✓