

Differential Calculus-1
Model Exam Question paper - 1

11th Standard

Business Maths

Reg.No. :

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Total Marks : 25

5 x 1 = 5

I. Answer all the questions

Time : 00:35:00 Hrs

Part-A

- 1) $\lim_{x \rightarrow 2} \frac{2x^2 + x + 1}{x + 2}$ is equal to
(a) $\frac{1}{2}$ (b) 2 (c) $\frac{11}{4}$ (d) 0
- 2) $\lim_{x \rightarrow 2} \frac{2x^2 - x - 1}{x^2 + x - 1}$
(a) 0 (b) 1 (c) 5 (d) 2
- 3) $\lim_{x \rightarrow 1} \frac{x^m - 1}{x^n - 1}$ is equal to
(a) mn (b) m+n (c) m-n (d) $\frac{m}{n}$
- 4) $\lim_{x \rightarrow \infty} \frac{(x-2)(x+4)}{x(x-9)} =$
(a) 1 (b) 0 (c) 9 (d) -4
- 5) $\lim_{x \rightarrow \infty} [(1/x) + 2] =$
(a) ∞ (b) 0 (c) 1 (d) 2

Part-B

- 6) Evaluate the following limits
(i) $\lim_{x \rightarrow 2} \frac{x^3 + 2}{x + 1}$
- 7) Evaluate the following limits
(ii) $\lim_{x \rightarrow \pi/4} \frac{2\sin x + 3\cos x}{3\sin x - 4\cos x}$
- 8) Evaluate the following limits
(iii) $\lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{x^2 - 7x + 10}$
- 9) Evaluate the following limits
(iv) $\lim_{x \rightarrow 0} \frac{\sqrt{2-x} - \sqrt{2+x}}{x}$

Part-C

- 10) Prove that $\cos x$ is continuous
- 11) Find the points of discontinuity of the function. $\frac{2x^2 + 6x - 5}{12x^2 + x - 20}$
- 12) Show that a constant function is always continuous.
- 13) Show that $f(x) = |x|$ is continuous at the origin.

4 x 2 = 8

4 x 3 = 12
