

Model Question paper
Functions and Graphs 2

11th Standard

Maths

Reg.No. :

--	--	--	--	--	--

I. Answer all the questions.

II. Use blue pen only.

Time : 00:50:00 Hrs

Total Marks : 35

5 x 1 = 5

Part - A

- 1) Identify the correct statements.
(i) A constant function is a polynomial function
(ii) A polynomial function is a quadratic function
(iii) For linear function, inverse always exists
(iv) A constant function is one-to-one only if the domain is a singleton set
(a) (i) and (iii) (b) (i),(iii) and (iv) (c) (ii) and (iii) (d) (i) and (iii)
- 2) Identify the correct statements.
(i) The domain of circular functions are always R
(ii) The range of tangent function is R
(iii) The range of cosine function is same as the range of sine function
(iv) The domain of cotangent function is $R - \{k\pi\}$
(a) All (b) (i) and (iii) (c) (ii),(iii) and (iv) (d) (iii) and (iv)
- 3) The true statements of the following are _____.
(i) The composition of function fog and the product of functions fg are same.
(ii) For the composition of functions fog, the codomain of g must be the domain of f
(iii) If fog, gof exist, then fog=gof
(iv) If the function f and g are having same domain and codomain, then fg=gf
(a) All (b) (ii),(iii) and (iv) (c) (iii) and (iv) (d) (ii) and (iv)
- 4) If $f: R \rightarrow R$, $g: R \rightarrow R$ defined by $f(x)=x+7$, $g(x)=x-7$, then go f(7) is
(a) 7 (b) 8 (c) -6 (d) -7
- 5) $\lim_{x \rightarrow a} \frac{\sqrt{x} + \sqrt{a}}{x+a}$ is
(a) $\sqrt{a}$ (b) $-\sqrt{a}$ (c) $\frac{1}{\sqrt{a}}$ (d) $-\frac{1}{\sqrt{a}}$

Part - B

5 x 2 = 10

- 6) Solve the following inequation:
 $x^2 \leq 9$
- 7) Solve the following inequation:
 $4 - x^2 < 0$
- 8) Solve the following inequation:
 $\frac{3x-2}{x-1} < 2, \quad x \neq 1$
- 9) If x is real, prove that the range of $f(x) = \frac{x^2-2x+4}{x^2+2x+4}$ is between $[\frac{1}{3}, 3]$
- 10) For the functions f, g, as defined in (1), define
(i) (f + g) (x) (ii) $\left(\frac{f}{g}\right)$ (x) (iii) (fg) (x) (iv) (f - g) (x) (v) (gf) (x)

Part - C

4 x 5 = 20

- 11) Draw the graphs of the exponential functions $f: R \rightarrow R^+$ defined by $f(x) = 2^x$
- 12) Draw the graphs of the logarithmic functions $f(x) = \log_2 x$
- 13) Solve the inequality $x^2 - 7x + 6 > 0$
- 14) Solve: $\frac{x-1}{4x+5} < \frac{x-3}{4x-3}$
