Functions and their Graphs-3

Model Exam Question paper - 3

11th Standard

Business Maths

Reg.No. :

I.Answer all the questions

Time : 01:05:00 Hrs | Total Marks : 50

Part-A | 4 x 1 = 4

1) In a function if the independent variable is acting as an index then the function is known as

   (a) exponential function (b) logarithmic function (c) trigonometric function (d) Inverse function

2) The minimum value of the function $f(x) = |x|$ is

   (a) 0 (b) 1 (c) -1 (d) $\frac{1}{2}$

3) The slope of the graph of $f(x) = \frac{|x|}{x}$; x>0 is

   (a) m=1 (b) m=0 (c) m=-1 (d) m is undefined

4) The greatest function f(x)=[x], in the range $3 \leq x < 4$has the value f(x)= ....

   (a) 1 (b) 3 (c) 4 (d) 2

Part-B | 4 x 2 = 8

5) If f(x)=sinx; g(x)=cosx, show that: $f(\alpha + \beta) = f(\alpha) + g(\beta) + g(\alpha)f(\beta)$when x,$\alpha, \beta \in$ R.

6) If A={-2,-1,0,1,2} and f: A$\rightarrow$R be defined by f(x)=x^2+3 find the range of f.

7) What is the domain of the secant function?

8) What is the period of this function?

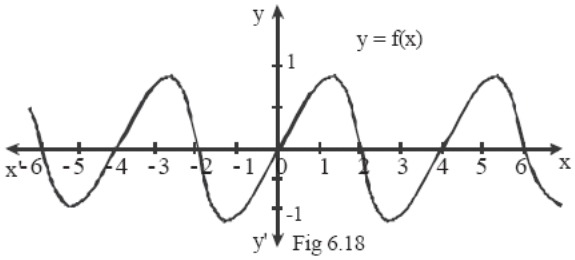

Fig 6.18

Part-C | 6 x 3 = 18

9) If f(x,y)=ax^2+bxy^2+cx^2+dy^3 find (i) f(1,0) (ii) f(-1,1)

10) Find the domain of the function f(x)=$\sqrt{x^2 - 7x + 12}$

11) Prove that f(x)=e^x-e^{-x} is an odd function.

12) Let f(x)=1-x; g(x)=x^2+2x both f and g are from R$\rightarrow$R verify that fog$\neq$gof.

13) Let f(x)=1-x, g(x)=x^2+2x and h(x)=x+5. Find (fog)oh.

14) f(x)=2x+7 and g(x)=3x+b find "b" such that f{g(x)}=g{f(x)}

Part-D | 4 x 5 = 20

15) For a linear function f, f(-1)=3 and f(2)=4
    Find a such that f(a)=100

16) A group of students wish to charter a bus which holds atmost 45 people to go to an educational tour. The bus company requires at least 30 people to go. It charges Rs.100 per person if upto 40 people go. If more than 40 people go it charges each person Rs.100 less $\frac{1}{5}$ times the number more than 40 who go. Find the total cost as a function of the number of students who go. Also give the domain.

17) Find the slope of straight line containing the points (1,2) and (3,6)

18) Suppose f(x)=$|x|$, g(x)=2x Find (i) f{g(-5)} (ii) g{f{-6}}

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