

Bridge Course (21B19GEIII)

Assignment Unit 1

Q.1. (i) AOB = {3,5,7,9,11} () {7,9,11,13} = {7,9,11}

(i) ANCHO = {3,5,7,9,11} / {11,13,15} / {15,17} = \$

(iii) BOC = {7,9,11,13} (11,13,15) = {11,13} (1)

(v) An(BUC) = $\{3,5,7,9,11\}$ $n\{7,9,11,13\}$. $U\{11,13,15\}$) = $\{3,5,7,9,11\}$ $n\{7,9,11,13,15\}$ = $\{7,9,11\}$

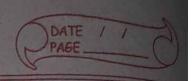
V) (AUD) \cap (BUC) = $\frac{2}{3},5,7,9,11,15,17} \cap \frac{2}{7},9,11,13,15} = {7,9,11,15} \cdot 4$

Q.2. (i) (AUB)' = A'OB' (HS; (F2,4,6,8) U {2,3,5,7})' = {2,3,4,5,6,7,8}' = {1,9}

(ii) $(A \cap B)' = A' \cup B'$ LHS: $(\{2,4,6,8\} \cap \{2,3,5,7\})' = \{2\}' = \{1,3,4,5,6,7,8,9\}$

RHS: {2,4,6,8} U {2,3,5,7} = {1,3,5,7,9} U {1,4,6,8,9} = {1,3,4,5,6,7,8,9}

L.H.S = R.H.S; hence Proved.



(9.3. f: R→R f(x) = [x]

for one-one : let x1 = 1.2 & x2 = 1.5

f(x1) = 1 & f(x2) = 1

 $x_1 \neq x_2$ but $f(x_1) = f(x_2)$ hence, $f(x_1) = f(x_2)$ hence, $f(x_1) = f(x_2)$

for Onto: every element of codomain did not have fore-image in domain such as 1-1, 19.5 etc.

hence, f'(n) is not onto

Q4. (1) f(x) = 1x1, g(x) = 15x-21

fog(x) = |15x-21| = |5x-2| of , gof(x) = |5|x1-2| of

 $f(x) = 8x^{3}, g(x) = x^{1/3}$ $f(x) = 6g(x) = f(g(x)) = 8(g(x))^{3} = 8(x^{1/3})^{3} = 8x \text{ My}$ $g(x) = g(f(x)) = g(f(x)) = (f(x))^{1/3} = (8x^{3})^{1/3} = 2x \text{ My}$

Q.5. $f: R^+ \to [4,\infty)$ $f(x) = x^2 + 4$

for one-one: let x_1 & x_2 be two R^+ no. Such that $f(x_1) = f(x_2)$ $x_1^2 + y' = x_2^2 + y'$

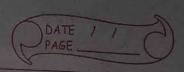
hence, the function is one-one

for ento: $y = x^2 + 4 \in co-domain$

° 2 = 4-4

n = Jy-4 € domain.

hence, every element of eo-domain has its pre-image in domain, i.e. the function ix onto



If the function is one-one & onto then the function is govertible.

f-100 = Jn-4 of

Q.6. (a) sin (1/2) [-17/2, 17/2] -sin-(1/2) = -II Ay

(c) Coser (2) [-17/2,17/2]-{0}

 $=\frac{\pi}{6}$ Φ

= II A

(07. $\sin^{-1}(2\pi\sqrt{1-x^2}) = 2\sin^{-1}x$; $-\frac{1}{\sqrt{2}} < x < \frac{1}{\sqrt{2}}$

L. H.s : let x = sino E [1/62 / 1/62]

= Sin+ (251n0coso) = sin+ (sin20) 0 € [-1741 174]

= $20 = 2\sin^{-1}x$ R.H.S

hence, LoHOS = RoHOS