## Unit - 2. Trigonometry - 14 Marks

\* Unit circle
$$x^2 + y^2 = 1$$

\*

$$* sino = \frac{1}{(aseco)} * laseco = \frac{1}{sino}$$

$$* \cos 0 = \frac{1}{\text{seco}} * \sec 0 = \frac{1}{\cos 0}$$

$$*$$
 temo =  $\frac{\sin \alpha}{\cos \alpha}$   $*$  coto =  $\frac{\cos \alpha}{\sin \alpha}$ 

\* P.T. 
$$\frac{\sin(\pi+0)}{\sin(\pi+0)} + \frac{\tan(\frac{\pi}{2}+0)}{\cot(\pi-0)} + \frac{\cos(\pi\pi+0)}{\sin(\frac{\pi}{2}+0)} = 3$$

\* P.T.  $\frac{\sin(\frac{\pi}{2}-0)}{\cos(\pi-0)} + \frac{\tan(\frac{\pi}{2}+0)}{\cot(\pi+0)} + \frac{\csc(\frac{\pi}{2}+0)}{\sec(\pi+0)} = -3$ 

\* Evaluate  $\frac{\sin(6-\frac{3\pi}{2})}{\cos(6-\pi)} + \frac{\sec(\frac{3\pi}{2}+0)}{\cos(\pi+0)} + \frac{\cot(\frac{\pi}{2}+0)}{\tan(2\pi+0)}$ 

\* Evaluate  $\frac{\sin(6-\frac{3\pi}{2})}{\cos(6-\pi)} + \frac{\tan(\frac{\pi}{2}+0)}{\cot(\pi+0)} + \frac{\cos(\frac{\pi}{2}+0)}{\sin(\pi+0)} + \frac{\cos(\frac{\pi}{2}+0)}{\cos(\pi+0)}$ 

\* P.T.  $\frac{\sin(\pi-A)}{\cos(6-\pi)} + \frac{\cot(\frac{\pi}{2}-A)}{\cot(\pi+0)} + \frac{\cos((\pi+0))}{\sin(\pi+0)} = \sin A$ 

\* Simplify  $\sin(180-6)$  (as  $(2\pi-A)$ ) (as  $e(90+0)$ ) (since  $e(90+0$ 

\* FOR DABC P. T. (i) sin(B+C) = sinA

(ii) tem (B+C)=cot &

(iii) sin (B+C)= ros A PATEL KISHIN PROVINGENAS

\* Compound angle

SIN(A+B) = sinA (asB + (a) A sinB

Sin (A-B) = SINA COSB - COSASINB

(as (A+B) = CasA (COLB - SINA SI'NB

(e) (A-B) = (e)A (e)B+ sinAsinB

tem (A+B) = temA + temB

tem (A-B) = tem A - tem B 1 + tem A + tem B

\* P.T. temso = tem 40: +2 tem10

\* sin (A+B) · sin (A-B) = sin2A - sin2B = (as2B-cas2A

\* P.T. Sin(B-C) + sin(C-A) + sin(A-B) = 0.

Singsine + sin(C-A) + sin(A-B) = 0.

\* FOR DABC P.T. temA + temB + teme = tenA. temB. teme.

\* P. T. temsA - temsA - temsA temsA temsA temsA

\* P. T. tem35 = (0310 + sin10 \* tem37 = C0312 + sin12 (0412 - sin10

\* P. T. tem20' + tam25' + tem20' tem25'=1. \* tem66'=

\* P. T. (1 + tem25) (1+tem20)=2

\* P. T. tem 10' + tem 35' + tem 10' tem 35' = 1

\* sindo = 2 sino coso \* Multiple - submultiple angle Sincoto) = sino codo + codo sino = Lsino coso  $\Rightarrow \sin 20 = 2 \sin 0 \cos 0 = 2 \sin 0 \cos 0 = \frac{2 \sin 0}{\cos 0}$   $= \sin^2 0 + \cos^2 0 = \frac{2 \sin 0}{\cos 0}$ tem20+1 sinzo = 2 temos 1 + temos \* cos20 = cos20 - sin20 (0)20 = (0)(0+0) = (0)0 (0)0 - sinosino = (03?0 - sin?0  $\rightarrow$  costo = costo - (1-costo) = 2 costo - 1  $\rightarrow$  (a) <0 = 1-sin(0 - sin(0 = 1-2sin(0  $\Rightarrow \cos 20 = \cos^2 0 - \sin^2 0 = \frac{\cos^2 0 - \sin^2 0}{\cos^2 0 + \sin^2 0} = \frac{1 - \tan^2 0}{1 + \tan^2 0}$ divideling case \* female = dteme 1 - tem ? o \* sin30 = 3 sino - 4 sin 30 singo = sincra+0) 8141238206 = sindo (000 + costo sino = (2 sino (000) (00 0 + (1-2 sino) · sino = dsino costo + sino - dsino

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- Singo = asino (1-singo) +sino -2 singo
          = 2 sino - 2 sin30 + sino -2 sin30
          = 3 sino - 4 sin30
* (0)30 = 41030 - 31010
LHS = (0330 = 00100+0)
                 = Costo coso - sinzo sino
               = (2 case 0-1) caso - ( esine caso) sino
               = 2 cos30 - coes0 - 2 sin20 cos0
               = 2 \cos^3 0 - \cos 0 - 2 (1 - \cos^2 0) \cdot \cos 0
               = 2 (0)30 - (0)0 - 2 (0)0 + 2 (0)30
               =4 \cos^3 0 - 3 \cos 0.
               = R. H. S
* tem30 = 3tem0 - tem30
 * Formula
                                    1+s/nd-(0)0 = tem 2
 * P.T. 1+sin2A-COJ2A = tenA, 1+sin0+coj0
1+sin2A+coj2A
                                     SIMA + 2 SINA COSA
 * P.T. sina+sinaA = temA
1+ layA + layaA
                                     1+ cas A+ 2 cas A-1
                                    Sina (1+2(a)A) tomas
sina (1+2(a)A) tomas
 * It tame = - 3 then tind
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\* S+S = &SC \* &SinA casB = 
$$Sin(A+B) + Sin(A-B)$$
.

& C = &CS

& CasA SinB =  $Sin(A+B) - Sin(A-B)$ 

& C = &CC

& C = &SinA SinB =  $Cas(A+B) + Cas(A-B)$ 

(A+B)

(C - C = &SS)

\*  $SinA + SinB = A Sin(A+B)$ .

(C = &SinA SinB =  $A Cas(A+B) - Cas(A-B)$ 

(C = &SinA SinB =  $A Cas(A+B) - Cas(A-B)$ 

SinA -  $SinB = A Cas(A+B)$ .

(C = &A-B)

(C = &A-B

(A+B)

(C = &A-B

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\* Inverse Trigonometry Function \* P.T. sinta + casta: = let sintx=0 : x = sino we know that sind = (01) ( = -0) 2. DC = COS( I - 0) ( ( ) x = I - 0 : (astx + sintx = I \* P.T. cosee x + see  $x = \frac{\pi}{2}$ \* P.T. tan  $x + \cot^{-1}x = \frac{\pi}{2}$ \* tem sc + tem y = tem  $\left(\frac{x+y}{1-xy}\right)$ , it xy < 1=  $T + tan^{1} \left( \frac{x+y}{1-xy} \right)$ , it xy>1= I , it xy = 1 \* P.T. tcm (1) + tcm (1) = I \*P.T. tem (=) + tem (=) = = = + P.T. tem (=) + tem (=) \*P.T. tani (2) + tani (24) = tani (2) \* P.T. 2 tem (2) = tem (5) \* P.T. 2 tem (5) + tem (7)= 4 \*P.T.  $Sin^{2}(\frac{3}{5}) + tem^{2}(\frac{4}{3}) = \frac{\pi}{2}$  3 Sino =  $\frac{3}{4}$  + temo =  $\frac{3}{4}$ \* P.T. (4) + tan 1(4) = I 3 Coso = 4 tamo = 3