X   UNIVERSAL MATRIC HR SEC SCHOOL
                       MATHEMATICS
                 UNIT TEST - 12 (B & D)   MARKS : 50

I   Choose the correct answer :   10 x 1= 10

1. $(1 - \sin^2) \sec^2$ = ... a) 0 b) 1   c) $\tan^2$ d) $\cos^2$

2. $(1 + \tan^2) \sin^2$ = ... a) $\sin^2$ b) $\cos^2$ c) $\tan^2$ d) $\cot^2$

3. $(1 - \cos^2)(1 + \cot^2)$ = ...

       a) $\sin^2$ b) 0   c) 1   d) $\tan^2$

4. $\sin(90 -)\cos + \cos(90 -)\sin$ = ...

       a) 1   b) 0   c) 2   d) -1

5. $(\cos^2 - 1)(\cot^2 + 1) + 1$ = ... a) 1   b) -1   c) 2   d) 0

6. $9 \tan^2 - 9 \sec^2$ = ... a) 1   b) 0   c) 9   d) - 9

7.   = ...

       a) $\cos^2$ b) $\tan^2$ c) $\sin^2$ d) $\cot^2$

8.   = ...

       a) cot   b) tan   c) sin   d) - cot

9. $1 - \tan^2 45$ = ... a) 0   b) 1   c) 2   d) 1/2

10.   If sin =cos then the value of   is ....

       a) 0   b) 45   c) 60   d) 90

II   Answer the following :   10 x 2 = 20

11.   Prove that $(\sin^6 + \cos^6) = 1 - 3 \sin^2 \cos^2$

12.   Prove that   =

13.   Prove that   = sec   - tan

14.   Prove that   = tan   + cot

15.   Prove that   = cosec   + cot

16.   A kite is flying with a string of length 200 m. If the thread makes an
       angle 30 with the ground, find the distance of the kite from the ground level

17.   A ladder leaning a vertical wall makes an angle of 60 with the ground.
       The foot of the ladder is 3.5 m away from the wall. Find the length of
       the ladder.

18.   Find the angular elevation angle of elevation from the ground level of the
       sun when the length of the shadow of a 30 m long pole is 10 m.

19.   A ramp for uploading a moving truck has an angle of elevation of 30 . If
       the top of the ramp is 0.9 m above the ground level. Then find the length
       of the ramp.

20.   A girl of height 150 cm stands in front of a lamp - post and casts a
       shadow of length 150 cm on the ground. Find the angle of elevation of
       the top of the lamp - post.

IV   Answer the following:(Practical Geometry and graph)   2 x 10 = 20

21.   Take a point which is 9 cm away from the centre of circle of radius 3
       cm and draw the two tangents to the cirle from that point.

22.   Draw the graph of xy = 20, x,y > 0 use the graph to find y when x = 5
       and x when y = 10

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