CENTRAL ACADEMY, REWA (MP)
PERIODIC TEST-[2]- 2019 – 20
CLASS –X
Subject – Mathematics

Time: 3:00 Hrs   M.M.: 60

Note –
1- All questions are compulsory.
2- Paper is divided into 4 section A, B, C and D.

SECTION – [A]

[1×13=13]

Q. 1   In ∆ABC AB = 24 cm, BC = 10 cm and AC = 26 cm then find ∠B.

Q. 2   If ∆ABC ~ ∆DEF, ar ∆ABC : ar∆DEF = 9:25 and BC = 21 then find EF.

Q. 3   Find distance of (x, y) from origin.

Q.4   If $\sin A = \dfrac{3}{4}$ then Find CosA.

Q.5   If $\cos\theta = a/b$ find $\tan\theta$.

Q.6   If $\sin\theta = \cos\theta$, then find value of $\tan\theta$.

Q.7   Find value of $\sqrt{(1-\sin^2\theta)\sec^2\theta}$

Q.8   In ∆ABC, ∠C=90 then find value cos (A+B).

Q.9   Find value $\dfrac{2\tan 30}{1-\tan^2 30}$.

Q.10   AD and PM are medians of ∆ABC and PQR such that AD: PM = 2:3 find ar ∆ABC: ar∆ PQR.

Q.11   The ratio of the length of a tower to the length of its shadow is 1:1 then what is the angle of elevation of sun?

Q.12   A pole 6 m high casts shadow 2√3 m on the ground, then what is angle of the elevation of the sun?

Q.13   Find distance of (4,5) from x axis.

SECTION – [B]

[2×6=12]

Q. 14   If (1,x), (5, 2) and (9, 5) are collinear then find x.

Q.15   Find the coordinate of A, where AB is diameter of a circle whose centre is (2, -3) and B is (1, 4).

Q.16   In ∆ABC, DE∥BC if AD = x, BD = x-2 AE = x+2 and EC = x-1 find the value of x.

Q.17 In ΔABC, DE‖BC and AD : DB = 4:5 then find the ar ΔADE : ar ΔABC.

Q.18 If sec 4A = cosec (A – 20) find A.

Q.19 If Cosecθ = $\frac{13}{12}$ find $\frac{2\sin\theta - 3\cos\theta}{4\sin\theta - 9\cos\theta}$.

SECTION – [C]

[3×5=15]

Q.20 Prove that $(\cos ec\theta - \cot\theta)^2 = \frac{1-\cos\theta}{1+\cos\theta}$.

Q.21 A tree breaks due to storm and broken part bends and top touches the ground by making on angle 30° with it. The distance between the foot of tree and the top is 8 m. Find the height of tree.

Q.22 D and E are points on the sides CA and CB of ΔABC, $\angle C=90$ then prove that $AE^2 + BD^2 = AB^2 + DE^2$.

Q.23 Find the area of quadrilateral whose vertices taken in order are (-4, -2), (-3, -5) (3,-2) and (2, 3).

Q.24 If (1, 2), (4, y), (x, 6) and (3, 5) are the vertices of parallelogram taken in order. Find x and y.

SECTION – [D]

[4×5=20]

Q.25 State and prove converse of Pythagoras theorem.

Q.26 If $(x_1\ y_1)$, $(x_2\ y_2)$, $(x_3\ y_3)$ are vertices of ΔABC then find the coordinate of its centroid.

Q.27 In equilateral ΔABC, D is a point on BC such that BD = $\frac{1}{3}$BC. Prove that $9AD^2 =7AB^2$.

Q.28 In ΔABC DE‖BC and ar ΔADE: ar ΔABC is 1: 3 then find BD: AD.

Q.29 Prove that $\frac{\tan\theta}{1-\cot\theta} + \frac{\cot\theta}{1-\tan\theta} = 1+\sec\theta.\cos ec\theta$