MARKING SCHEME

S.A 1 SET 1 - 2014

MATHEMATICS-X

SECTION – A

1. 3 cm (1)
2. 20-30 (1)
3. 16 (1)
4. -2.25 (1)

SECTION – B

5. TanA=tanB (1)
   A=90-B (1/2)
   A+B=90 (1/2)
6. 15 = $\frac{445+10P}{27+P}$ (1)
   405 + 15p = 445 + 10p (1/2)
   P = 8 (1/2)
7. 5(7x6x4x3x2x1+1) (1)
   It has more than two factors,
   So it is a composite number (1)
8. Prove triangles to be similar (1/2)
   AO/OC = OB/OD = ½ = AB/CD (1/2)
   CD = 10cm (1)
9. Rationalise LHS (1)
   We get:$\frac{(1-sin\theta)^2}{1-sin^2\theta}$ (1/2)
   $\left(\frac{1-sin\theta}{cos\theta}\right)^2$ (1/2)
10. Modal Class 120-140 (1/2)
    Mode=120+$\left(\frac{14-12}{28=12-8}\right)20$ (1/2)
    =125 (1)

SECTION – C

11. Proof: method (3)
12. $x^2-\frac{5}{3}$ is a factor (1/2)
    Division (1)
    $f(x)=(3x^2-5)(x^2+2x+1)$ (1)
    Other zeroes are -1, -1 (1/2)
13. Adding :
    200x + 200y = 15 (1)

X+ y = 15

Subtracting:

2x-2y=2

X - y =1 (1)

x= 8, y=7 (1)

14. $\frac{1}{k-1} = \frac{2}{k+1} = \frac{3}{k+3}$ (1)

K=3 k =3 (1) + (1)

15. Figure (1/2)

Proof (2 +1/2)

16. Similarity (1) $\frac{BC}{AC} = \frac{AC}{DC}$

(1)

BC X DC =AC^2 (1)

17. $\frac{3}{4}x\frac{1}{2} + 4x4 + \frac{1}{2}$ (2)

$\frac{3+128+4}{8}$ (1/2)

$\frac{135}{8}$ (1/2)

18. $sin^2A + cosec^2A + 2 + cos^2A + sec^2A + 2$ (1)

$5 + cosec^2A + sec^2A$ (1)

$7 + cot^2A + tan^2A$ (1)

19. Proof by Euclid's Algorithm (3)

20. A) H.C.F =2 ($1\frac{1}{2}$)

b) value ($1\frac{1}{2}$)

SECTION – D

21. Division Algorithm (1/2)

Division (2)

Verify ($1\frac{1}{2}$)

22. Opposite direction

10x -10y =200 ($1\frac{1}{2}$)

X –y =20

Same direction

2x +2y =200 ($1\frac{1}{2}$)

X + y = 100

X =60km/hr y =40km/hr (1)

23. Proof using BPT (4)

24. Theorem

To prove

proof (4)

25. $\frac{sec^2 25 - tan^2 25}{cos^2 73 + sin^2 73} + \frac{1}{\sqrt{3}} cot 80 \frac{1}{\sqrt{3}} tan 80$ (3)

4/3 (1)

26. $LHS = \frac{1-cosA}{sinA} + \frac{1+cosA}{sinA}$ ($2\frac{1}{2}$)

$\frac{2}{sinA}$ (1)

$2\ cosecA = RHS$ (1/2)

27. Sin75°

Sin (45°+30°) (1/2)

$\frac{\sqrt{3}}{2\sqrt{2}} + \frac{1}{2\sqrt{2}}$ ($2\frac{1}{2}$)

$\frac{\sqrt{3}+1}{2\sqrt{2}}$ (1)

28. Table and Graph

Median = 20.5 (4)

29. 28.5 = 20 + $\frac{25-x}{2}$ ($2\frac{1}{2}$)

17 = 25 – x (1/2)

X = 8, y = 7 (1)

30. Table ($2\frac{1}{2}$)

$\bar{x} = \frac{14137}{70}$ (1)

$\bar{x} = 201.957$gm (1/2)

31. Graph (4)