Set A

MUNICIPAL LEVEL EXAMINATION 2074

Basic Level (Class: 8)

Subject: Compulsory Mathematics **Marking scheme**

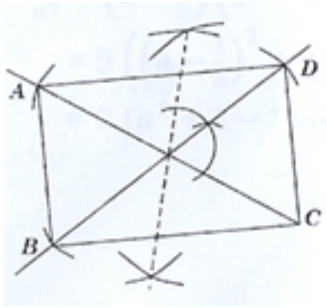
Group 'A'

1. a. ∠CDM ---------- 1
   b. C = 2πr ---------- 1
2. a. PQ = $\sqrt{(x_4 - x_3)^2 + (y_4 - y_2)^2}$ ---------- 1
   b. 135^0 ---------- 1
3. a. QCP ---------- 1
   b. 4.058×10^4 ---------- 1
4. a. 3 ---------- 1
   b. (2p + 3q) (2p - 3q) ---------- 1
5. a. 0 ---------- 1
   b. x > - 2 ---------- 1

Group 'B'

6. a. $5y + 4y = 180^0$
   $y = 20^0$ ---------- 1
   & 2x = 4y
   $x = 40^0$ ---------- 1
   b. $\frac{360^0}{n}$ ---------- 1
   51.42^0 ---------- 1
   c. $\frac{AB}{AE} = \frac{BC}{ED} = \frac{AC}{AD}$ ---------- 1
7. a. K-9 = 11 ---------- 1
   K = 20 ---------- 1
   b. C = 2πr ---------- 1
   308 = 2πr
   r = 49 ---------- 1
8. a. Area (A) = $\frac{1}{2}$ d ($P_1 + P_2$) ---------- 1
   $= \frac{1}{2} \times 10\ (5+3)$
   = 40 ---------- 1
   b. $15^2 = (b-0)^2 + (0-q)^2$ ---------- 1
   b = 12 ---------- 1
   c. $\overline{P - Q}$ = U - (P-Q) ---------- 1
   = {0, 1, 2, ..., 9} - {1, 5, 7}
   = {0, 2, 3, 4, 6, 8, 9}
9. a. $4021_5 = 4\times5^3 + 0\times5^2 + 2\times5^1 + 1\times5^0$ ---------- 1
   = 511 ---------- 1
   b. 750 = 2x + 3x ---------- 1
   x = 15, 2x = 30, 3x = 45 ---------- 1
   c. $\bar{X} = \frac{\Sigma x}{N}$ ---------- 1
   $7 = \frac{42+a}{7}$
   a = 7 ---------- 1
10. a. $\frac{a^2+b^2-2ab}{a^2-b^2}$ ---------- 1
    $= \frac{(a-b)^2}{(a+b)(a-b)}$
    $= \frac{a-b}{a+b}$ ---------- 1
    b. $\left(\frac{81}{625}\right)^{\frac{3}{4}} = \left(\frac{3}{5}\right)^{4\times\frac{3}{4}}$ ---------- 1
    $= 6x^3y^0$ ---------- 1
    $= 6x^3$ ---------- 1
11. a. $-5 \le x - 4 \le 2$
    $-1 \le x \le 6$ ---------- 1
    . : x = {-1, 0, 1, 2, ... , 6} ---------- 1
    b. $4y^2-12y+9=0$
    $4y^2 - 6y - 6y + 9 = 0$ ---------- 1
    (2y - 3) (2y - 3) = 0 ---------- 1

12. **Group 'B'**



. : Completed the construct □ ABCD.

13. Construct two square with 4cm & 4.5cm sides.

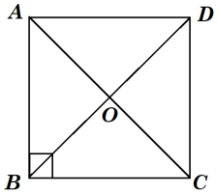


Fig I

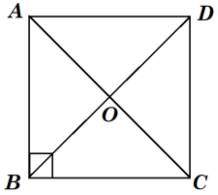


Fig II

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In table

Fig	AO	OC	BO	OD	∠AOD	Result
I						AO = OC = BO = OD & ∠AOD = 90^0
II						

----------2

Conclusion ---------- 1

14. $A(x,y) \xrightarrow{Ro\,[-90^0,0(0,0)]} A^{|}(-y, x)$ ---------- 0.5

$P(3,2) \xrightarrow{"} P^{|}(-2, 3)$ ---------- 0.5

$Q(5, 2) \xrightarrow{"} Q^{|}(-2, 5)$ ---------- 0.5

$R(3, -2) \xrightarrow{"} R^{|}(2, 3)$ ---------- 0.5

& In graph ---------- 2

15. $n(U) = n(m) + n(s) - n(m \cap s) + n(\overline{m \cup S})$ ---------- 1

$120 = 4x + 3x - 40 + 20$

$X = 20$ ---------- 1

i) $n_0(m) = n(m) - n(m \cap s)$

$= 40$ ---------- 1

ii) In venn - diagram ---------- 1

16. Let b = x, h = y

$l = 2x = 3y = x = \frac{3y}{2}$ ---------- 1

$v = l \times b \times h$ ---------- 1

$162 = 3y \times \frac{3y}{2}$ ---------- 1

$y^3 = 36$

$y = 3.3$ ---------- 1

$l = 3y = 9.9$, $b = \frac{3y}{2} = 4.95$, $h = 3.3$ ---------- 1

17. $\frac{\sqrt{12}}{\sqrt{18}} - \frac{2\sqrt{2}}{\sqrt{48}} - \sqrt{24} + \frac{\sqrt{75}}{\sqrt{50}} = \frac{2\sqrt{3}}{3\sqrt{2}} - \frac{2\sqrt{2}}{4\sqrt{3}} - 2\sqrt{6} + \frac{5\sqrt{3}}{5\sqrt{2}}$ ---------- 1

$= \frac{2\sqrt{6}-}{6} - \frac{2\sqrt{6}}{12} - 2\sqrt{6} + \frac{5\sqrt{6}}{10}$ ---------- 1

$= \frac{-4\sqrt{6}}{3}$ ---------- 2

18. M.P. = 2000, d= 15% ×2000 = 300 ---------- 1

S.P. = 2000 - 300

= 1700 ---------- 1

C.P. = $\frac{S.P.\times 100}{100+P\%}$ ---------- 1

$= \frac{1700\times 100}{100+15}$

= 1478.26 ---------- 1

19. A can do in 24 days = 1 work

A can do in 1 day = $\frac{1}{24}$ work.

A can do in 18 days = $\frac{1}{24} \times 18$ work = $\frac{3}{4}$ work ---------- 1

Remaining work = $\left(1 - \frac{1}{4}\right) = \frac{1}{4}$ ---------- 1

B can do 1 work = 40 days.

B can do $\frac{1}{4}$ work = $40 \times \frac{1}{4}$ days = 10 days ---------- 1

Total time = (18+10) days = 28 days ---------- 1

20. At 1st

P = 3000

T = S

I = 525

R = $\frac{I\times 100}{PT}$ ---------- 1

$= \frac{525\times 100}{3000\times 5}$ = 3.5% ---------- 1

At 2nd

P = 2500

T = 7

R = 3.5

I = $\frac{PTR}{100}$ ---------- 1

$= \frac{2500\times 7\times 3.5}{100}$ = 612.5 ---------- 1

21. X = 11, 12, 13, 14, 15, 16, 17, 18, 19 ---------- 1

$Q_2 = \left(\frac{N+1}{2}\right)^{th}$ = 5^{th} = 15 ---------- 1

Below Q_2 = 4 & above Q_2 = 4 ---------- 2

22. $a - \frac{1}{a} = 9$

$a^3 - \frac{1}{a^2} = \left(a - \frac{1}{a}\right)\left(a^2 - a \cdot \frac{1}{a} - \frac{1}{a^2}\right)$ ---------- 1

$= 9\left(\left(a-\frac{1}{a}\right)^2 + 2.a.\frac{1}{a} - 1\right)$ ---------- 1

$= 9\ (a^2+2-1)$ ---------- 1

$= 91$ ---------- 1

23. 1st exp. $= a^2 + 2a - 3 = a^2 + 3a - a - 3 = (a+3)(a-1)$ ----------

-----1

2nd exp. $= a^2-1 = (a+1)(a-1)$ ---------- 1

3rd exp. $= 4(a-1)^2$ ---------- 1

HCF $= (a-1)$ ---------- 1

24. $\frac{2m}{2m+3n} + \frac{3n}{2m-3n} - \frac{18n^2}{4m^2-9n^2}$

$= \frac{2m(2m-3n)+3n(2m+3n)}{(2m+3(2m+3n)} - \frac{18n^2}{(2m+3n)(2m-3n)}$

$= \frac{4m^2-9n^2}{(2m+3n)(2m-3n)}$

$= \frac{(2m+3n)(2m-3n)}{(2m+3n)(2m-3n)} = 1$ ---------- 2

25. $2x+y = 23$ -------- i

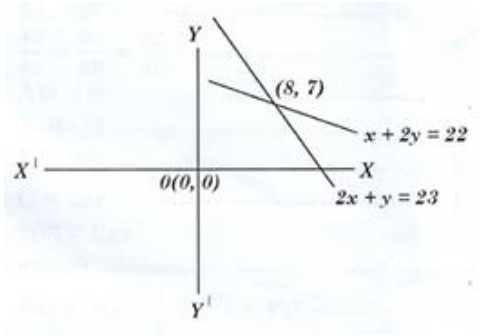
$x+2y = 22$ -------- ii

From eqn (i) in table taking difference values of x, then corresponding values for y.

X				
Y				

From eqn (ii) in table, taking difference values of x, than corresponding values for y.

X				
Y				



For figure ---------- 1

. : From graph, (x,y) = (8, 7) ---------- 1

The End