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(PATNA REGION)
SUMMATIVE ASSESSMENT-II, (2015-16)
MARKING SCHEME
(Expected Answer/Value points)

1. 162.5 1

2. P(E)= $\frac{3}{6} = \frac{1}{2}$ 1

3. 18 1

4. 96 cm^2 1

5. Draw an angle 105° 1 Bisect it 1

6. $l = \sqrt{r^2 + h^2}$ 1

$= \sqrt{5^2+12^2}$

$= \sqrt{25+ 144}$

$= \sqrt{169} = 13$ cm 1

7. Vol. of Cylinder = $\pi r^2 h$

$= \frac{22}{7} \times 7^2 \times 14\ cm^3$ 1

$= 2156\ cm^3$

8. Perimeter = 250 m

2 (l + b) = 250

Cost of Painting the four Walls= Rs 15000

Area of four Walls = $\frac{15000}{10} m^2$ = 1500 m^2 1

Area of four Walls = 2 (l + b)x h

$\therefore$ 2(l + b)x h= 1500

250 x h = 1500

$\therefore$ h = $\frac{1500}{250}$= 6 m 1

9. Volume = $\frac{1}{3}\pi r^2 h = \frac{1}{3} \times \frac{22}{7} \times \frac{7}{4} \times \frac{7}{4} \times 12 = \frac{77}{2} m^3$ 1

Hence capacity of the pit = $\frac{77}{2}$ kilolitres

= 38.5 Kilolitres 1

10. Surface area of sphere = 154 cm^2

$\Rightarrow$ 4 π r^2 = 154 cm^2 1

$\Rightarrow$ r = $\frac{7}{2} cm$ 1

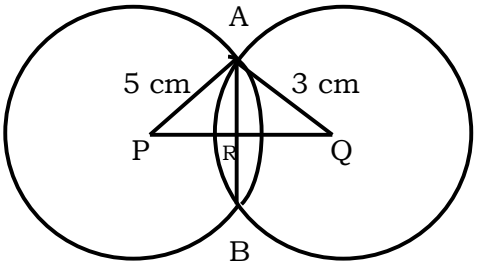
11. Given, to prove, construction, figure 1

Proof of theorem 2

12. Given, to prove, construction, figure 1
Proof of theorem 2

13. Given: AP || BQ || CR
To Prove: ar(AQC)= ar(PBR)
Proof: ΔAQC, ΔPBR are on the same base BQ between the same parallels AP and BQ 1
ar (ABQ) = ar (PBQ) ——————————— ①
Similarly, ar (BQC) = ar (QBR)——————————— ② 1
Adding ① and ②, get
ar (AQC) = ar (PBR) 1

14.



Let QR = x 1
PR = 4 - x
In right ΔARP,
$AR^2 = 5^2 - (4 - x)^2$
In right ΔARQ,
$AR^2 = 3^2 - x^2$ 1
$\therefore 5^2 - (4 - x)^2 = 3^2 - x^2$
$\Rightarrow 9 - x^2 + 8x = 9 - x^2$
$\Rightarrow 8x = 0$
$\Rightarrow x = 0$
$\therefore$AR = 3 cm
$\therefore$AB = 2 x AR = 2x3= 6cm 1

15. Reflex $\angle POR = 2\ \angle PQR$
$= 2 \times 100 = 200°$
Now LPOR = 360°-200°=160° 1
As OP = OR
$\Rightarrow \angle OPR = \angle ORP$ 1
$\therefore \angle OPR + \angle ORP + \angle POR = 180°$
$2\ \angle OPR + 160° = 180°$
$\Rightarrow \angle OPR = 10°$ 1

16. Ten prime numbers are
2,3,5,7,11,13,17,19,23,29 1
Median = $\frac{\left(\frac{10}{2}\right)th + \left(\frac{10}{2}+1\right)th + ern}{2}$ 1
$= \frac{5th + 6th + ern}{2}$
$= \frac{11+13}{2} = \frac{24}{2} = 12$ 1

17. 2

Mark (x_i)	Frequency (f_i)	$f_i x_2$
20	4	80
21	5	105
22	3	66
23	6	138
24	3	72
25	7	175
	$\Sigma f_i = 28$	$\Sigma f_i x_i = 636$

Mean = $\frac{\Sigma fixi}{\Sigma fi} = \frac{636}{28} = 22.71$ 1

18. In a family there are four possibilities

(boy, boy), (boy, girl), (girl, boy), (girl, girl) 1

i.e BB, BG, GB, GG

Let A be an event 'At lest one girl'

$1 \therefore P(A) = \frac{No.of\ favourable\ out\ come}{\text{Total out come}} = \frac{3}{4}$ 1

19. Total consumption of water per day 2

= 4000 x 150 litres

$= \frac{4000 \times 150}{1000}\ m^3$ 2

= 600 m^3

Vol. of tank = 20 x 15 x 6 m^3 1

= 1800 m^3

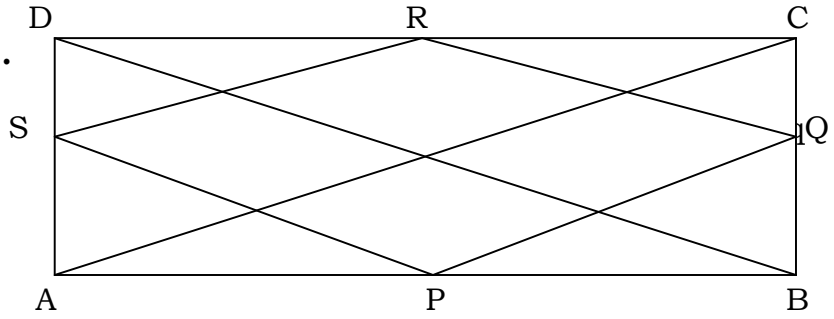
No. of days the water of the tank will last = $\frac{1800}{600}$ 1

= 3 days

20. Given, To prove, Construction, figure 2

Proof 2

21.



Given, To prove, Construction, figure 1

Using midpoint theorem,

Proof: PQ= $\frac{1}{2}$AC and PQ II AC ——————————①

and SR = $\frac{1}{2}$AC, SR II AC②1——————————

from ① and ② get

PQ = SR and PQ II SR

∴PQRS is a *ll*gm 1

As ABCD is a rectangle

AC = BD

$\Rightarrow \frac{1}{2}AC = \frac{1}{2}BD$

$\Rightarrow$ PQ = QR = RS= SQ

$\Rightarrow$ PQRS is a rhombus 1

22. Given, To prove, Construction 1

Proof: As ΔACB and ΔACF are on the same base AC and between the same parallel AC and BF

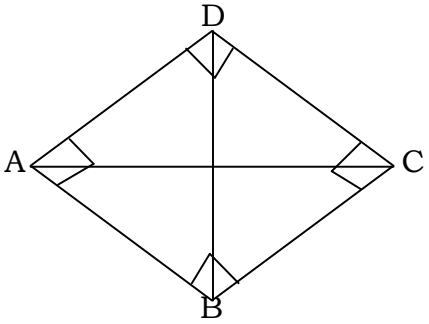
ar (ACB)= ar (ACF) 1

Adding ar (ACDE) to both sides, get

ar (ABCDE)= ar (AEDF)

∴ar (AEDF)= ar (ABCDE) 2

23.



1

Proof: As ∠ ADC = 90°

∠ ABC = 90° 1

∴ they are angle in the semi circle. 1

Now CD is the chord of this circle.

∴∠CAD=∠CBD 1

24. To construct a ΔXYZ 3
Steps of construction 1

25. Volume of the earth to be dug out
= Volume of the well
$= \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} \times 22.5\ m^3$ 2
$= 866.25\ m^3$
Area of the inner curved surface area
$= 2\pi rh$
$= 2 \times \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} \times 22.5\ m^2$
$= 495\ m^2$ 1
Value: - Social work adopted

26. As $2\pi r = \frac{220}{7}\ cm$
$\Rightarrow$ $r = \frac{220}{7x2} \times \frac{7}{22} = 5\ cm$ 1
Volume of cone = $\frac{1}{3}\pi r^2 h$ 1
$= \frac{1}{3} \times \frac{22}{7} \times 25 \times 12\ cm^3$
$= 3.14 \times 100\ cm^3$
$= 314\ cm^3$ 2

27. (i) Draw neat and clean Histogram
and represents given information 3

(ii) No of Lamps having a life time of
more than 700 house = 74+62+48 = 184 Lamps 1

28. Total numbers of bags = 5
(i). P (more than 40 seeds in a bag) = $\frac{3}{5} = 0.6$ 1
(ii). No of bags in which 49 seeds germinated = 0
$\therefore$ P (49 seeds in a bag) = $\frac{0}{5} = 0$ 2
(iii). P (more that 30 seeds in a bag) = $\frac{5}{5} = 1$ 1

OTBA (10 Marks)

Theme 1: Children obesity in India

29. (i) $x = 8 + (t-1) \times 2$ $1^{1/2}$
$\Rightarrow$ $x = 2t + 6$

(ii) $y = 28 + (t-1) \times 3$ $1^{1/2}$
$\Rightarrow$ $y = 3t + 25$

30. $x = \frac{y}{2^2} => x = \frac{y}{4}$ $1^{1/2}$

$\Rightarrow$ 4x-y = 0

Graph $1^{1/2}$

31. 8x+10y = 200

$\Rightarrow$ 4x+5y = 100 2

Draw Graph 2

Theme 2: Energy Consumption and Electricity Bill

29. Let the total units = x <400 1

200 x 5.40 + (x-200) x 5.41 = 1500 2

30. $\frac{2x\,(160)}{1000} + \frac{4y\,(160)}{1000} = 100$ $1^{1/2}$

$\Rightarrow$ x +2y = 312.5 $1^{1/2}$

31. Let x be number of units and y be the electric charges.

For Delhi:	y= 2.15x	1
For Mumbai	y= 3.88x	1
For Kolkata	y= 5.69x	1
For Chennai	y= 2.98x	1