

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

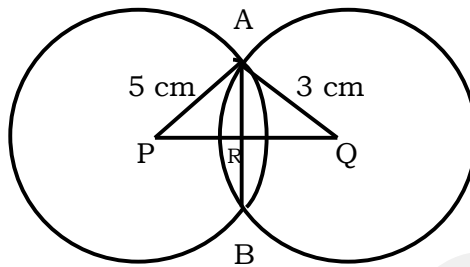
- | | |
|---|-------------|
| 1. 162.5 | 1 |
| 2. $P(E) = \frac{3}{6} = \frac{1}{2}$ | 1 |
| 3. 18 | 1 |
| 4. 96 cm^2 | 1 |
| 5. Draw an angle 105° | 1 Bisect it |
| | 1 |
| 6. $\begin{aligned} & \sqrt{r^2 + h^2} \\ & = \sqrt{5^2 + 12^2} \\ & = \sqrt{25 + 144} \\ & = \sqrt{169} = 13 \text{ cm} \end{aligned}$ | 1 |
| 7. Vol. of Cylinder = $\pi r^2 h$
$= \frac{22}{7} \times 7^2 \times 14 \text{ cm}^3$
$= 2156 \text{ cm}^3$ | 1 |
| 8. Perimeter = 250 m
$2(l + b) = 250$
Cost of Painting the four Walls = Rs 15000
$\text{Area of four Walls} = \frac{15000}{10} \text{ m}^2 = 1500 \text{ m}^2$
$\text{Area of four Walls} = 2(1 + b) \times h$
$\therefore 2(1 + b) \times h = 1500$
$250 \times h = 1500$
$\therefore h = \frac{1500}{250} = 6 \text{ m}$ | 1 |
| 9. Volume = $\frac{1}{3} \pi r^2 h = \frac{1}{3} \times \frac{22}{7} \times \frac{7}{4} \times \frac{7}{4} \times 12 = \frac{77}{2} \text{ m}^3$ | 1 |
| Hence capacity of the pit = $\frac{77}{2}$ kilolitres
$= 38.5 \text{ Kilolitres}$ | 1 |
| 10. Surface area of sphere = 154 cm^2
$\Rightarrow 4 \pi r^2 = 154 \text{ cm}^2$
$\Rightarrow r = \frac{7}{2} \text{ cm}$ | 1 |
| | 1 |
| 11. Given, to prove, construction, figure
Proof of theorem | 1
2 |

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

13. Given: $AP \parallel BQ \parallel CR$
 To Prove: $\text{ar}(AQC) = \text{ar}(PBR)$
 Proof: $\Delta AQC, \Delta PBR$ are on the same base BQ between the same parallels AP and BQ

$\text{ar}(ABQ) = \text{ar}(PBQ)$ ————— ① 1
 Similarly, $\text{ar}(BQC) = \text{ar}(QBR)$ ————— ② 1
 Adding ① and ②, get 1
 $\text{ar}(AQC) = \text{ar}(PBR)$ 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
 $\therefore 5^2 - (4 - x)^2 = 3^2 - x^2$
 $\Rightarrow 9 - x^2 + 8x = 9 - x^2$
 $\Rightarrow 8x = 0$
 $\Rightarrow x = 0$
 $\therefore AR = 3 \text{ cm}$
 $\therefore AB = 2 \times AR = 2 \times 3 = 6 \text{ cm}$ 1

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

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

17. Mark (x_i)	Frequency (f_i)	$f_i x_i$	2
20	4	80	
21	5	105	
22	3	66	
23	6	138	
24	3	72	
25	7	175	
	$\Sigma f_i = 28$	$\Sigma f_i x_i = 636$	

$$\text{Mean} = \frac{\Sigma f_i x_i}{\Sigma f_i} = \frac{636}{28} = 22.71$$

1

18. In a family there are four possibilities

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

i.e BB, BG, GB, GG

Let A be an event 'At least one girl'

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

1

1

19. Total consumption of water per day

$$= 4000 \times 150 \text{ litres}$$

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

$$= 600 \text{ m}^3$$

$$\text{Vol. of tank} = 20 \times 15 \times 6 \text{ m}^3$$

$$= 1800 \text{ m}^3$$

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

$$= 3 \text{ days}$$

2

2

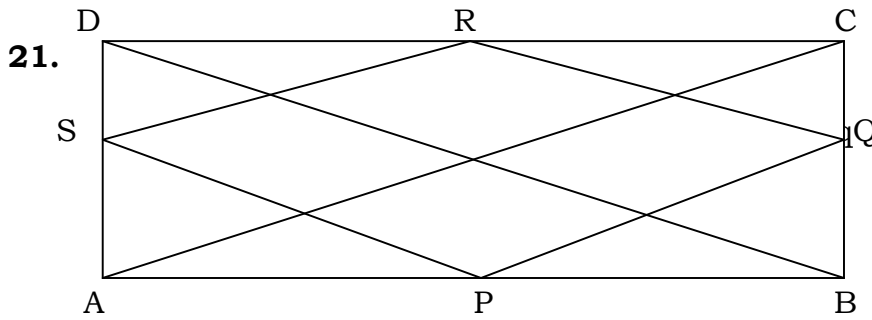
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1

20. Given, To prove, Construction, figure
Proof

2

2



Given, To prove, Construction, figure

1

Using midpoint theorem,

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

and $SR = \frac{1}{2}AC$, $SR \parallel AC$ ②

from ① and ② get

$PQ = SR$ and $PQ \parallel SR$

$\therefore PQRS$ is a *llgm*

1

As $ABCD$ is a rectangle

$AC = BD$

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

$$\Rightarrow PQ = QR = RS = SQ$$

$\therefore PQRS$ is a rhombus

1

22. Given, To prove, Construction

1

Proof: As $\triangle ACB$ and $\triangle ACF$ are on the same base AC and between the same parallel AC and BF

$\text{ar}(\triangle ACB) = \text{ar}(\triangle ACF)$

1

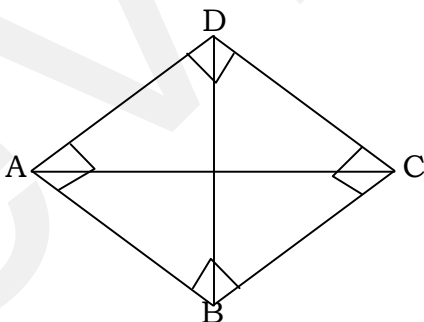
Adding $\text{ar}(\triangle ACDE)$ to both sides, get

$\text{ar}(\triangle ABCDE) = \text{ar}(\triangle AEDF)$

$\therefore \text{ar}(\triangle AEDF) = \text{ar}(\triangle ABCDE)$

2

23.



1

Proof: As $\angle ADC = 90^\circ$

$\angle ABC = 90^\circ$

1

\therefore they are angle in the semi circle.

1

Now CD is the chord of this circle.

$\therefore \angle CAD = \angle CBD$

1

24. To construct a ΔXYZ 3
 Steps of construction 1

25. Volume of the earth to be dug out
 = Volume of the well
 $= \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} \times 22.5 \text{ m}^3$ 2
 $= 866.25 \text{ m}^3$

Area of the inner curved surface area
 $= 2\pi rh$
 $= 2 \times \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} \times 22.5 \text{ m}^2$
 $= 495 \text{ m}^2$ 1

Value: - Social work adopted

26. As $2\pi r = \frac{220}{7} \text{ cm}$
 $\Rightarrow r = \frac{220}{7 \times 2} \times \frac{7}{22} = 5 \text{ cm}$ 1

Volume of cone $= \frac{1}{3} \pi r^2 h$ 1
 $= \frac{1}{3} \times \frac{22}{7} \times 25 \times 12 \text{ cm}^3$
 $= 3.14 \times 100 \text{ cm}^3$
 $= 314 \text{ cm}^3$ 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). $P(\text{more than 40 seeds in a bag}) = \frac{3}{5} = 0.6$ 1

(ii). No of bags in which 49 seeds germinated = 0
 $\therefore P(49 \text{ seeds in a bag}) = \frac{0}{5} = 0$ 2

(iii). $P(\text{more that 30 seeds in a bag}) = \frac{5}{5} = 1$ 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. $x = \frac{y}{2^2} \Rightarrow x = \frac{y}{4}$ 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

$200 \times 5.40 + (x - 200) \times 5.41 = 1500$ 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