

⑫

(i) area of quad.  
 $= \frac{\pi r^2}{4}$   
 $= 9.625 \text{ cm}^2$

(ii) reqd. area = area of quadrant  
 - area of  $\Delta BOD$   
 $= \frac{\pi r^2}{4} - \frac{1}{2} \times OB \times OD$   
 $= \frac{22}{7} \times 3.5 \times 3.5 - \frac{1}{2} \times 3.5 \times 3.5$   
 $= 9.625 - 3.5$   
 $= 6.125 \text{ cm}^2$

⑬

side of square = 20 cm  
 diag. of square =  $\sqrt{2}$  side  
 $= 20\sqrt{2} \text{ cm}$   
 $\therefore$  radius of quadrant  
 $= 20\sqrt{3} \text{ cm}$   
 area of shaded region  
 = area of quadrant  
 - area of square  
 $= \frac{\pi r^2}{4} - \text{side}^2$   
 $= \frac{3.14 \times (20\sqrt{2})^2}{4} - 20^2$   
 $= \frac{1.57 \times 400 \times 2}{4} - 400$   
 $= 400(1.57 - 1)$   
 $= 400 \times 0.57$   
 $= 228 \text{ cm}^2$

⑭

reqd. area = area of big sector  
 - area of smaller sector  
 $= \frac{\pi R^2 \theta}{360} - \frac{\pi r^2 \theta}{360}$   
 $= \frac{\pi \theta}{360} (R^2 - r^2)$   
 $= \frac{22}{7} \times \frac{30}{360} (21^2 - 7^2)$   
 $= \frac{11}{42} \times (21-7)(21+7)$   
 $= \frac{11}{42} \times 74 \times 28$   
 $= \frac{308}{3}$   
 $= 102.67 \text{ cm}^2$

⑮

$BC = 14\sqrt{2} \text{ cm}$   
 $R = \frac{14\sqrt{2}}{2}$   
 $= 7\sqrt{2} \text{ cm}$   
 area of shaded region  
 = area of  $\Delta BAC$  + area of semi  $\odot$   
 - area of quadrant  
 $= \frac{1}{2} \times AC \times AB + \frac{\pi R^2}{2} - \frac{\pi r^2}{4}$   
 $= \frac{1}{2} \times 14 \times 14 + \frac{22}{7} \times \frac{(7\sqrt{2})^2}{2} - \frac{22 \times 14^2}{7 \times 4}$   
 $= 98 + \frac{11}{7} \times 49 \times 2 - \frac{22 \times 196}{7 \times 4}$   
 $= 98 + 154 - 154$   
 $= 98 \text{ cm}^2$

⑯

required area  
 = area of 2 semi  $\odot$ s - area of sq.  
 $= 2 \times \frac{\pi r^2}{4} - \text{side}^2$   
 $= \frac{11}{7} \times 8 \times 8 - 8^2$

$$= 64 \left( \frac{11}{7} - 1 \right)$$

$$= 64 \left( \frac{11-7}{7} \right)$$

$$= 64 \times \frac{4}{7}$$

$$= \frac{256}{7} \text{ cm}^2$$

$$= 36.57 \text{ cm}^2$$