

Pharmaceutical Calculations Posology

1. Which of the following formula for calculating child dose is based on body weight:

[GPAT 2024]

- (a) Clark's formula (b) Dilling's formula
(c) Young's formula (d) Fried's formula

2. Using Young's rule, calculate the dose for a 5-year-old child if the adult dose is 340mg

[GPAT-2017]

- (a) 200 mg (b) 100 mg (c) 400 mg (d) 800 mg

3. $(\text{Weight in pounds}/150) \times \text{Adult Dose}$ Child dose. The above formula is known as in Posology [GPAT-2017]

- (a) Young's formula (b) Dilling's formula
(c) Clark's formula (d) Fried's formula

4. The dose of the drug is 5 mg/kg body weight, how much the drug is required for the boy of 12 years who weigh 21 kg [GATE-1991]

- (a) 0.5 mg (b) 1.0 mg (c) 1.5 mg (d) 2.0 mg

5. Posology is

- (a) Dietary chart to patient (b) Concerned with dosage
(c) Diagnosis report to patient (d) Description of patient symptoms

6. Which formula is used to calculate the dose of a child according to their age

- (a) Dilling's (b) Cowling's (c) Fried's (d) All the above

7. Dose is defined as

- (a) Amount of drug taken to produce intended medical response.
(b) Amount of drug causing poisoning
(c) Amount of dosage forms available for drugs
(d) None of the above

□ Age-based Rules

Formula Name	Formula
Young's Rule	$\text{Child Dose} = \frac{\text{Age in years}}{\text{Age in years} + 12} \times \text{Adult Dose}$
Dilling's Formula	$\text{Child Dose} = \frac{\text{Age in years}}{20} \times \text{Adult Dose}$
Fried's Formula	$\text{Child Dose} = \frac{\text{Age in months}}{150} \times \text{Adult Dose}$
Cowling's Rule	$\text{Child Dose} = \frac{\text{Age at next birthday (years)}}{24} \times \text{Adult Dose}$

SAMPLE CALCULATIONS (PYQS)

1. Calculate the child dose if the age of the child is 5 years and the adult dose is 600 mg. (Using Young's Rule)

$$\text{Dose} = \frac{\text{Age (years)}}{\text{Age} + 12} \times \text{Adult Dose}$$

$$\text{Dose} = \frac{5}{5 + 12} \times 600 = \frac{5}{17} \times 600 = 176.47\text{mg}$$

2. The age of a child is 10 years. The adult dose is 500 mg. Calculate the dose using Young's rule.

$$\text{Dose} = \frac{10}{10 + 12} \times 500 = \frac{10}{22} \times 500 = 227.27\text{mg}$$

3. What is the dose for a 6-year-old child if the adult dose is 250 mg? (Apply Young's rule)

$$\text{Dose} = \frac{6}{6 + 12} \times 250 = \frac{6}{18} \times 250 = 83.33\text{mg}$$

4. What is the dose for a 6-month-old infant if the adult dose is 300 mg? (Apply Fried's rule)

$$\text{Dose} = \frac{\text{Age (months)}}{150} \times \text{Adult Dose}$$

$$\text{Dose} = \frac{6}{150} \times 300 = 12\text{mg}$$

5. If the adult dose is 60 mg and child weight is 14 kg, calculate the child dose as per Clark's formula.

$$\text{Dose} = \frac{\text{Weight of child (kg)}}{70} \times \text{Adult Dose}$$

$$\text{Dose} = \frac{14}{70} \times 60 = 12\text{mg}$$

6. Adult dose of a drug is 240 mg, calculated dose for a child of age 12 years is? (Apply Young's Rule)

$$\text{Dose} = \frac{12}{12 + 12} \times 240 = \frac{12}{24} \times 240 = 120\text{mg}$$

7. What is the dose for a 50 lb child if the average adult dose is 20 mg? (Apply Clark's Rule)

$$\text{Dose} = \frac{\text{Weight of child (lb)}}{150} \times \text{Adult Dose}$$

$$\text{Dose} = \frac{50}{150} \times 20 = 6.6\text{mg}$$

8. A liquid dosage form of paracetamol contains 240 mg/5 mL. The usual paediatric dose is 15 mg/Kg of body weight. How much liquid should be given to an 8-year-old child weighing 25 kg?

$$\text{Total dose} = 15 \times 25 = 375 \text{ mg}$$

$$\text{Volume} = \frac{375}{240} \times 5 = 7.81\text{ml}$$

9. Calculate the dose for a child who has a body surface area (BSA) of 0.57 m² and the adult dose is 100 mg.

$$\text{Dose} = \frac{\text{BSA of child}}{\text{BSA of adult (1.73 m}^2)} \times \text{Adult Dose} \quad \& \quad \text{Dose} = \frac{0.57}{1.73} \times 100 = 32.94\text{mg} \approx 33 \text{ mg}$$

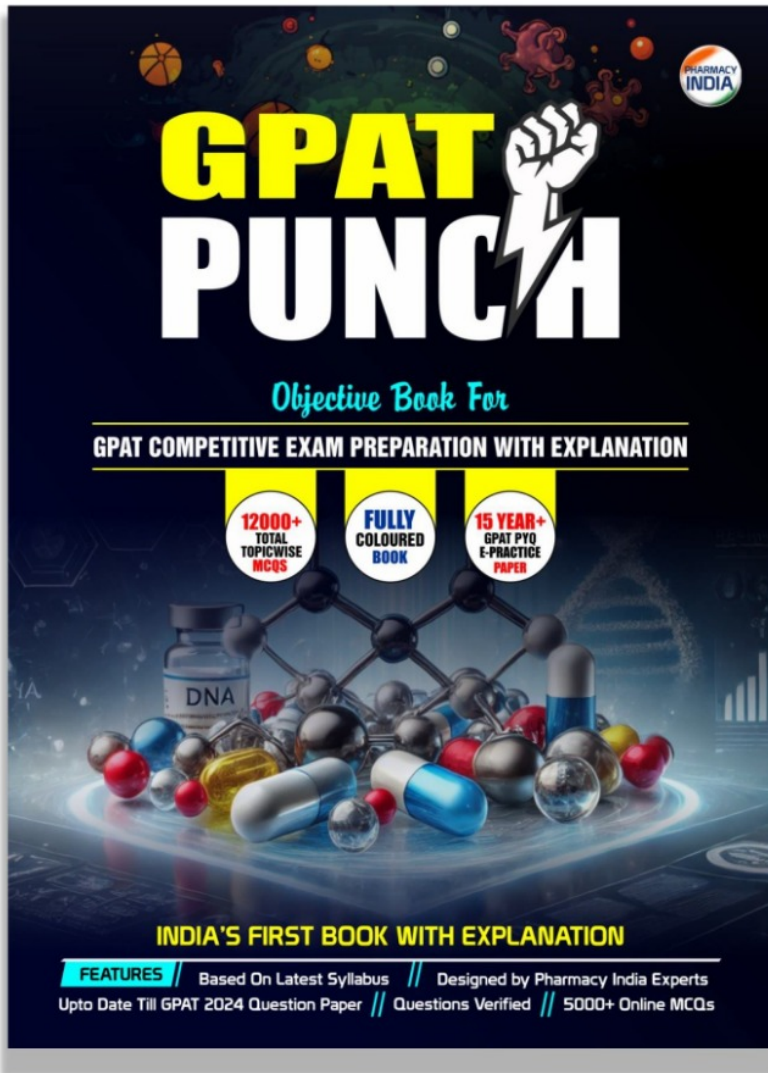
10. Convert 132 pounds to kilograms.

$$1 \text{ kg} = 2.2 \text{ lbs}$$

$$\frac{132\text{lbs}}{2.2} = 60\text{kg}$$



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