

**Q1\Answer:-**

1- $A_{eff}=2B_{eff}$  ,2-  $Phy_{1/2}$  of B =1 WEEK =7 DAYS=24 ×7 HOURS= 60 ×24×7 MINUTES=360×24×7sec=

3- $Bio_{1/2}$  of B = ( 1/3)  $Phy_{1/2}$

$$Eff_{1/2} = \frac{Bio_{1/2} \times Phy_{1/2}}{Bio_{1/2} + Phy_{1/2}} = \frac{(\frac{1}{3} \times Phy_{1/2}) \times Phy_{1/2}}{\frac{1}{3} \times Phy_{1/2} + Phy_{1/2}} = \frac{(Phy_{1/2})^2 / 3}{(\frac{4}{3}) Phy_{1/2}} \Rightarrow Eff_{1/2} = Phy_{1/2} / 4 \text{ this is for B,}$$

∴  $A_{eff}=2B_{eff} \Rightarrow A_{eff}=2(Phy_{1/2} / 4) = Phy_{1/2} / 2 = (1 \text{ WEEK})/2 = (7 \text{ DAYS})/2 = (24 \times 7 \text{ HOURS})/2 = 84 \text{ h,}$

∴ the total time period required for the effect of the radioactive material that the patient was treated with equal to zero =2( 84h)=168h.

**Q2\ Answer:-**

Blood pressure values to healthy young dentist=120/80 mmHg ⇒then for liquid have the same density to healthy human unclotted blood =(Hg density/ blood density)×(120 /80).

Or  $120 \times (\text{Hg density} / \text{blood density}) = 120 \times (13.6 \text{ g.cm}^{-3} / 1.0565 \text{ g.cm}^{-3} ) ,$

$80 \times (13.6 \text{ g.cm}^{-3} / 1.0565 \text{ g.cm}^{-3} ) ,$

**Q3\ Answer:-**

$$f_r = \frac{1}{2\pi\sqrt{LC}} \text{ -----(1)}$$

∴ C=0.001L -----(2) ,  $f_r=5L$  -----(3) BY PUT (2)& (3) in (1)⇒

$$5L = \frac{1}{2\pi\sqrt{(0.001)L}} = 10\pi L = \frac{1}{\sqrt{L^2 \cdot 0.001}} = 10\pi L = \frac{1}{L\sqrt{0.001}} = \pi L^2 = \frac{1}{10\sqrt{0.001}} \Rightarrow \pi^2 L^4 = \frac{1}{100(0.001)} = \frac{1}{0.1} \Rightarrow \pi^2 L^4 = 10 \Rightarrow L = (10/\pi^2)^{1/4}$$

$L = (10/9.8596)^{1/4} \approx 1 \Rightarrow \therefore L=1H \Rightarrow f_r = 5L = 5H_z , C = (0.001)L \Rightarrow C = 0.001F \Rightarrow$

$X_L = 2\pi f L = 2 \times 3.14 \times 5 \times 1 = 31.4\Omega$

$X_C = 1/2\pi f C = 1/2 \times 3.14 \times 0.001 = 1/6.28 \times 0.001 = 159.235\Omega .$

**Q4\ Answer:-**

$A = A_0 e^{-\lambda t}$  , t =t ,  $\lambda = 50/t$  ,  $A = 10D/sec \Rightarrow$

∴  $10 = A_0 e^{-(50/t)t}$   $10 = A_0 e^{-50} \Rightarrow A_0 = e^{50}/10 = 5,184,705,528,587,072,464,087.4533229335/10 =$

ملاحظة :- الاعداد بالون الازرق قبل الفارزة الاعداد بالون الاحمر بعد الفارزة

ملاحظة : قيمة اس العدد الطبيعي يجب ان تكون موجبة دائماء لذلك نعوض عن قيمة ثابت الانحلال دائماء بقيمة سالبة وذلك لتتناقصها مع الزمن.

