

## JEE Main 31 January 2023 Shift 2 Memory-Based Questions



1. Find the coefficient of  $x^{-6}$  in the expression  $[(4x/5) - (5/2x^2)]^9$ .
2. An object of mass 10 kg is moving with a velocity of 20 m/s on a rough surface. The object comes to a stop after 5 seconds. Taking  $g = 10 \text{ m/s}^2$ , find the coefficient of friction.
3. An hyperbola with an eccentricity  $\sqrt{2}$  has its foci at  $(1+\sqrt{2}, 0)$  and  $(1 - \sqrt{2}, 0)$ . Find the length of the LR.
4. If  $a = \langle 1, 2, -3 \rangle$ ,  $b = \langle 1, -1, 3 \rangle$ , and  $c = \langle 1, 2, 2 \rangle$ . Additionally,  $u \times a = b \times c$  and  $u \cdot a = 0$ . Find  $25|u|^2$ .
5.  ${}^{2n+1}P_{n-1} : {}^{2n-1}P_n = 11:21$ . Find the value of  $n^2 + n + 15$ .
6. Find S if  $S = 1^2 + 2.3^2 + 3.5^2 + \dots + 15.29^2$
7. Which one of the following is linear in shape?  
 $I_3^-$ ,  $I_3^+$ ,  $ICl_3$ ,  $ICl_2^+$
8. For a given hydrocarbon, 11 moles of  $O_2$  is used to produce 4 moles of  $H_2O$ . What is the formula of the hydrocarbon then?
9. Which one of the following has an important role in neuromuscular functions?  
Ca, Mg, Li, Be
10. Match the following.

UV Rays	Physiotherapy
Infrared Rays	Treatment of Cancer
X-Rays	Lasik Eye Surgery
Microwave Rays	Aircraft Navigation