Q-2

$a = 4$
$b = 2$
$k = 1$

⇒ We will find $\log_b a$:

$$\log_2 4 = \log_2 2^2 = 2$$

$$\therefore \boxed{\log_b a = 2}$$

⇒ Now, compare $\log_b a$ with k;

$$\therefore 2 > 1$$

⇒ From the above calculations; $\log_b a$ is greater than k

⇒ We will check the cases of master theorem.

Case: 1 $\log_b a > 1$

$\hookrightarrow \Theta(n^{\log_b a})$

⇒ So, as per the case;

answer ⇒ $\boxed{\Theta(n^2)}$