**30** A radioactive source contains a radioisotope which has a half-life of 24 hours. In the absence of this source, a constant average count-rate of 10 min$^{-1}$ is recorded. Immediately after the source is placed in a fixed position near the counter, the average count-rate rises to 90 min$^{-1}$.

What average count-rate is expected with the source still in place 12 hours later?

**A** 45 min$^{-1}$ **B** 50 min$^{-1}$ **C** 57 min$^{-1}$ **D** 67 min$^{-1}$

**BLANK PAGE**