QUESTION 70
Maximal oxygen consumption (V.O₂ maximum) is the best measure of aerobic capacity or cardiovascular fitness and declines with age. In healthy ageing, the most important physiological change which contributes to this decline is a reduction in:
A. maximum heart rate.
B. stroke volume.
C. arterial PO₂.
D. forced expiratory volume in 1 second (FEV₁).
E. total lung capacity.

Answer:

The influences on maximal oxygen consumption can be represented by Fick’s equation

\[ \text{VO₂max} = (HR\text{max} \times SV\text{max}) \times (CaO₂\text{max} - CvO₂\text{max}) \]

From up to date

VO₂: oxygen (O₂) uptake; SV: stroke volume; HR: heart rate; PiO₂: partial pressure inspired O₂: FiO₂ x Patmospheric; CaO₂: arterial oxygen content; CvO₂: mixed venous oxygen content.

Stroke Volume and HR most physiological factors influenced by age – HR numerically influenced by increasing age (220-age)

So answer is A