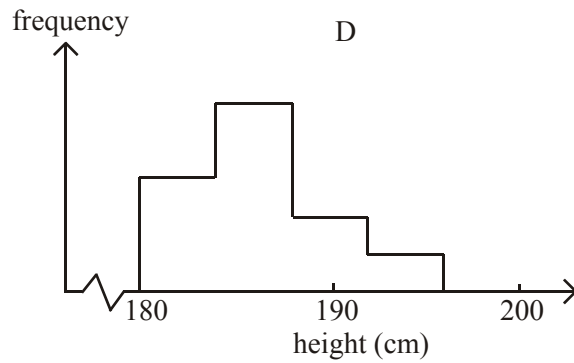
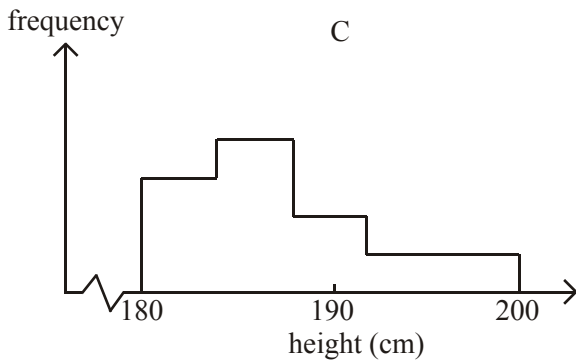
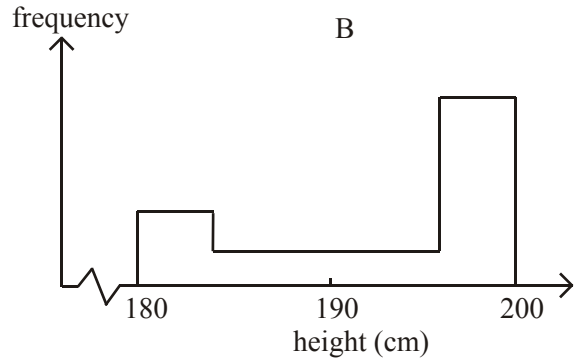
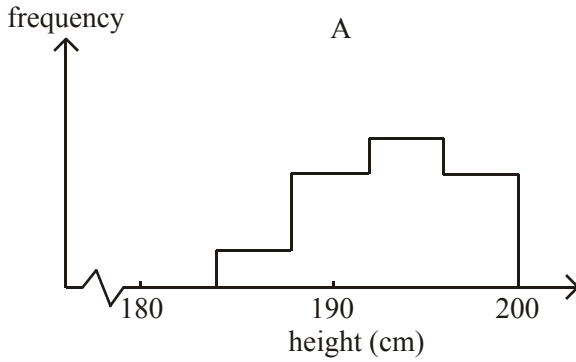


# IB Statistics Questions 4

Name: \_\_\_\_\_

1. The heights in cm of the members of 4 volleyball teams A, B, C and D were taken and represented in the frequency histograms given below.



The mean  $\bar{x}$  and standard deviation  $\sigma$  of each team are shown in the following table.

	I	II	III	IV
$\bar{x}$	194	189	188	195
$\sigma$	6.50	4.91	3.90	3.74

Match each pair of  $\bar{x}$  and  $\sigma$  (I, II, III, or IV) to the correct team (A, B, C or D).

$\bar{x}$ and $\sigma$	Team
I	
II	
III	
IV	

**(Total 6 marks)**



# IB Statistics Standard deviation Questions

## Answers

1.

$\bar{x}$ and $\sigma$	Team
I	B
II	C
III	D
IV	A

*Note: Award (A6) for all correct, (A4) for 2 correct or for 3 correct and 1 blank, (A2) for 1 correct but (A0) if the same letter appears 4 times.*

(A6) (C6)

[6]

2.

(a)  $\frac{44.5 - 12.4}{5.35} = 6$

(M1)(A1)

(C2)

(b)  $90 \times 12.4 = 1116$   
 $1116 - 44.5 - 43.2 = 1028.3$

(M1)(A1)

(M1)(A1)

$\frac{1028.3}{88} = 11.7$

(M1)(A1)

(C6)

*Note: Award (M0)(A0) then ft for  $88 \times 12.4$ .*

*Award (M0)(A0) for  $\frac{1028.3}{90}$ .*

[8]

3.

(a) Mean =  $\frac{5 \times 0 + 10 \times 1 + 6 \times 2 + 3 \times 3 + 1 \times 4}{25} = 1.4$

(M2)(AG)

2

*Note: Award (M1) for the numerator and (M1) for the denominator.*

(b)  $\sum f(x - \bar{x})^2 = 5(0 - 1.4)^2 + 10(1 - 1.4)^2 + 6(2 - 1.4)^2$   
 $+ 3(3 - 1.4)^2 + 1(4 - 1.4)^2 = 28$

(M2)

*Note: Award (M1) for  $(x - \bar{x})^2$  values, and (M1) for multiplying by the appropriate frequencies.*

$$\begin{aligned} \text{S.D.} &= \sqrt{\frac{28}{25}} \\ &\text{(M1)} \\ &= 1.06 \\ &\text{(AG)} \end{aligned}$$

3

- (c) Award (R1) for each acceptable reason, e.g.  
Group 2 has more children in total.  
Group 2 has a larger number of children per female.  
Group 2 generally have larger families.

(R2) 2