Statistic

Multiple Choice Questions

Q: 1 The chart below shows the marks obtained by students of sections A and B of grade 10. The results are recorded in groups as follows:

	Number of students		
Mark	Section A	Section B	
20 - 29	1	2	
30 - 39	1	1	
40 - 49	10	9	
50 - 59	11	11	
60 - 69	5	4	
70 - 79	2	3	

Based on the above information, two statements are given below - one labelled Assertion (A) and the other labelled Reason (R). Read the statements carefully and choose the option that correctly describes statements (A) and (R).

Assertion (A): The median mark of section A is equal to the median mark of section B.

Reason (R): The cumulative frequency of the median class and the preceding class are the same for both the sections.

1 Both (A) and (R) are true and (R) is the correct explanation for (A).

2 Both (A) and (R) are true but (R) is not the correct explanation for (A).

3 (A) is true but (R) is false.

4 (A) is false but (R) is true.

Case Study

Study the given information and answer the questions that follow.

The game of cricket is a bat and ball game played between two teams, each consisting of 11 players. The length of a match is determined by the total number of balls bowled by both the teams.

Shown below is a histogram for the number of matches that were finished in or less than 200 balls.

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(Note: Round all calculations to two decimal places.)

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Q: 5 Shown below is the frequency polygon. It represents the performance of all [1] participating countries in a question in an international assessment, TIMSS 2011.



If Japan's performance was 43%, did it perform better or worse than the average performance? Show your work.

Q: 6 A football match is 90 minutes long and is divided into 15 minute intervals to collect [1] data, like 0-15, 15-30, so on.

All goals scored in a football match between Brazil and Serbia at FIFA 2022 were in the 60-75 minute interval.

What is the mode of this data? Show your work.

(Note: Any extra time to be ignored.)

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Q: 7 The median of the following distribution is 35. Some of the entries in the table are missing. [2]

Class Interval	Frequency	Cumulative Frequency
10 – 20	5	5
20 – 30		A
30 – 40	5	
40 – 50		40
50 - 60	5	45

Find the value A. Show your steps.

Q: 8 The graph below shows the number of goals scored upto a given minute-mark in all [5] football matches in FIFA World Cup 2022.



Find the approximate minute in the 90-minute game before which about 50% of the goals in FIFA World Cup 2022 were scored. Show your work.





Q.No	Correct Answers
1	1
2	2
3	3
4	3

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Q.No	What to lool	k for			Marks
5	Finds the average performance of all countries as $\frac{130+570+300+280}{42} = \frac{1280}{40}$ or approximately 30%.				0.5
	Writes that Japan performed better than the average performance.				
6	Finds the mode of this data as $60 + \frac{1}{2} \times 15 = 67.5$ minutes.				1
7	Writes that $n = 45$ and $\frac{n}{2} = 22.5$.				0.5
	Uses the formula of the median of grouped data and finds A as follows. $35 = 30 + (\frac{22.5 - A}{5} \times 10)$				
	=> A = 20				
8	Constructs the cumulative frequency distribution table as:				
		F		1	
	0-15	15	15		
	15-30	16	31		
	30-45	36	67		
	45-60	28	95		
	60-75	31	126		
	75-90	46	172		
	Writes that $\frac{172}{2}$ class.	= 86th obse	ervation lies in the class	45-60 and hence it is the median	1

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Q.No	What to look for	Marks
	Substitutes the values in the formula for the median to get 45 + $\frac{86-67}{28}$ × 15, where	1
	45 = the lower limit of median class (<i>I</i>) 67 = the cumulative frequency of the class preceding the median class (<i>cf</i>) 28 = frequency of median class (<i>f</i>) 86 = $\frac{1}{2}$ of number of observations 15 = the class size (<i>h</i>)	
	Finds the approximate median minute as $45 + (\frac{2}{3} \times 15) = 55$ minutes.	1

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