

**AGA KHAN UNIVERSITY EXAMINATION BOARD**

**HIGHER SECONDARY SCHOOL CERTIFICATE**

**CLASS XI**

**ALTERNATE TO PRACTICAL (ATP)**

**MODEL EXAMINATION PAPER 2021**

**Statistics Paper III**

**Time: 25 minutes    Marks: 15**

**INSTRUCTIONS**

1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 15 only.
4. In each question, there are four choices A, B, C, D. Choose ONE. On the answer grid, black out the circle for your choice with a pencil as shown below.

Correct Way	Incorrect Ways
1 <input type="radio"/> A <input type="radio"/> B <input checked="" type="radio"/> C <input type="radio"/> D	1 <input type="radio"/> A <input type="radio"/> B <input checked="" type="radio"/> C <input type="radio"/> D
	2 <input type="radio"/> A <input type="radio"/> B <input checked="" type="radio"/> C <input type="radio"/> D
	3 <input type="radio"/> A <input type="radio"/> B <input checked="" type="radio"/> C <input type="radio"/> D
	4 <input type="radio"/> A <input type="radio"/> B <input checked="" type="radio"/> C <input type="radio"/> D

**Candidate's Signature**

5. If you want to change your answer, ERASE the first answer completely with a rubber, before blacking out a new circle.
6. DO NOT write anything in the answer grid. The computer only records what is in the circles.
7. You may use a scientific calculator if you wish.

Use the given information to answer Q.1 and Q.2.

Height (cm)	Number of Students
156 – 160	14
161 – 165	10
166 – 170	18
171 – 175	4
176 – 180	4

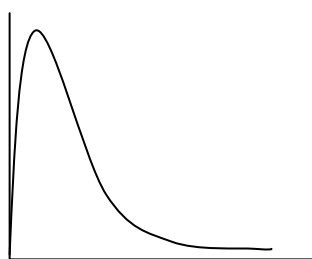
1. The number of students who have height less than or equal to 170 cm is

- A. 42
- B. 36
- C. 26
- D. 18

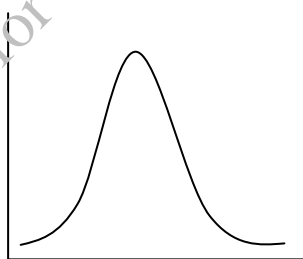
2. The third quartile of the data lies in the class interval

- A. 176 – 180
- B. 171 – 175
- C. 166 – 170
- D. 161 – 165

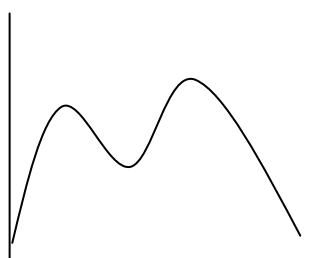
3. Which of the following distribution shows a bi-modal distribution?



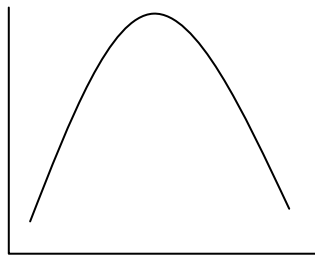
A



B



C



D

4. For the table given  $\sum_{i=1}^6 x_i y_i$  is equal to

$x_i$	5	3	2	1	0	1
$y_i$	5	4	3	2	1	0

- A. 180  
 B. 45  
 C. 47  
 D. 30
5. Sobia earned an average of Rs 7,500 in the first 4 days and earned an average of Rs 8,000 in the next three days of a week. Her average earning of the week was Rs
- A. 2,142.86  
 B. 4,541.67  
 C. 7,714.29  
 D. 7,750
6. If the mean of a variable  $X$  is 10, then the mean of the new variable  $\frac{X}{2} - 3$  will be
- A. 10  
 B. 5  
 C. 7  
 D. 2

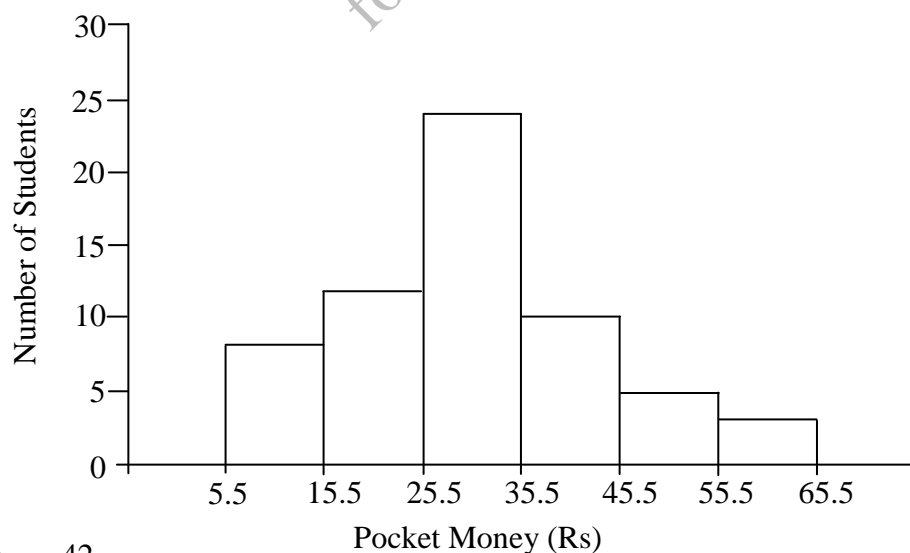
7. A mobile company distributed its branded T-shirts among 200 selected customers. The customers were given a choice to select their favourite colour. The data is recorded in the given table.

Favourite Colour of T-Shirt	Number of Customers
Blue	32
White	50
Red	40
Green	53
Others	25

The suitable type of graph(s) to represent the given data is/ are

- I. simple bar chart.  
 II. multiple bar chart.  
 III. pie chart.
- A. I only  
 B. III only  
 C. II and III  
 D. I and III
8. The given diagram shows a histogram which represents the daily pocket money, in rupees, of students in a class.

The estimated modal pocket money of the class, in Rs, is



- A. 42  
 B. 36  
 C. 29  
 D. 18

9. If the standard deviation of a data is 6 and the coefficient of variation is 50%, then the arithmetic mean is
- 0.12
  - 0.3
  - 3
  - 12
10. For a certain grouped data, if  $\frac{\sum fx^2}{\sum f} = 25,860$  and  $\frac{\sum fx}{\sum f} = 25$ , then the variance of this data is
- 158.86
  - 162.74
  - 25,235
  - 26,485
11. If the standard deviation of 11, 13, 14, 16, and 15 is 1.721, then the standard deviation of 21, 23, 24, 26 and 25 is equal to
- 1.721
  - 10.721
  - 11.721
  - 21.721

Use the given information to answer Q.12 and Q.13.

The price of potato in the first four weeks of January 2018 are recorded in the given table.

Week	Price per kg (in Rs)
Week -1	25
Week-2	30
Week-3	32
Week-4	20

12. If the price of Week-1 is considered to be the base price, then the price index of Week-4 indicates that the price in Week-4, as compared to Week-1, is
- 25% higher.
  - 25% lower.
  - 20% higher.
  - 20% lower.

PLEASE TURN OVER THE PAGE

13. If the price of Week-1 is considered to be the base price, then the highest change in price index is
- A. 20%
  - B. 25%
  - C. 28%
  - D. 60%
14. A simple linear regression is expressed through an equation  $\hat{Y} = 20 + 2.5X$ , where  $X$  is the number of hours spent on studying per week and  $Y$  is the marks obtained in a test. The slope and y-intercept, of the regression equation, respectively are
- A. 20 and 2.5
  - B. 2.5 and 20
  - C.  $-2.5$  and 20
  - D. 2.5 and  $-20$
15. If the regression equations of two variables are  $y - x = 1$  and  $y - 2x = 5$ , then the coefficient of correlation will be
- A. 2
  - B.  $\frac{1}{2}$
  - C.  $\frac{1}{\sqrt{2}}$
  - D.  $\sqrt{2}$

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