केंद्रीय माध्यमिक शिक्षा बोर्ड
CENTRAL BOARD OF SECONDARY EDUCATION

Curriculum Aligned Competency Based Test Items
Mathematics
Class 9 – Chapter 14
Statistics

Five friends Anchal, Amisha, Mahi, Vaishu and Sahar are living in a hostel.
At the end of every month, they calculate the expenses on food and shopping.
The table given below shows their monthly expenses for the month of November.

Name	Anchal	Amisha	Mahi	Vishu	Sahar
Expenditure (in Rs)	3000	5000	6000	4500	7000

SAS21M09D1401

1 Which graphical representation method would best represent the data given?

_____

_____

SAS21M09D1402

2 What is the average expense of the friends for the month of November?

_____

_____

SAS21M09D1403

3 Anchal says, "The difference between the median expenditures for October and November amounts to 10% of the November expense, and we have been able to reduce our median expense for November."
What was their median expense for the month of October?

A. 12π
B. 15π
C. 19π
D. 20π

A charity surveys the people of a village for their haemoglobin counts. 25 out of 100 adult females in the village were tested. The result is given in this table.

Haemoglobin (mg/dl) counts	No. of females
5	3
6	3
7	2
8	5
9	1
10	1
11	3
12	4
13	2
14	1

SAS21M09D1404

4   A haemoglobin counts below 12 is considered deficient.
What proportion of females in the survey can be considered deficient?

A. $\dfrac{3}{25}$

B. $\dfrac{4}{25}$

C. $\dfrac{18}{25}$

D. $\dfrac{22}{25}$

SAS21M09D1405

5   What is the median haemoglobin counts (mg/dl) of the females in the survey?

A.   8
B.   9
C.   9.5
D.   12.5

SAS21M09D1406

6   Divya said that 8 and 12 are the most observed haemoglobin counts (mg/dl) among 25 females.
Krishna said that 8 and 12 are the most observed haemoglobin counts (mg/dl) among 100 females in the village.
Who is correct? Explain your answer.

_____

_____

In a school camp, 40 students were divided into two groups to play a game.
The table given below shows the scores of team A and team B.

Time(s) in minutes	Cumulative Score of Team A	Cumulative Score of Team A
0-5	14	20
5-10	35	27
10-15	30	31
15-20	35	31
20-25	44	37
25-30	52	50

SAS21M09D1407

7 How many score points did team A get between 10-15 minutes?

A.   6
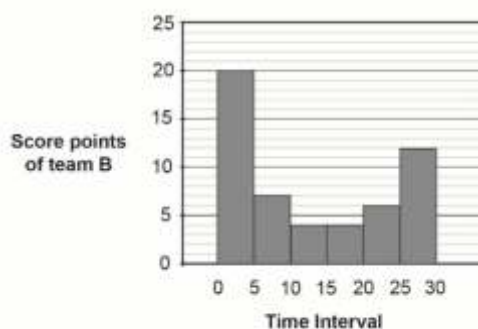B.   24
C.   30
D.   68

SAS21M09D1408

8 Which team scored more points during last 5 minutes? Justify your answer.

_____

_____

SAS21M09D1409

9 What is the mean number of score points obtained by team A in a 5-minute interval rounded to the nearest whole number?

_____

_____

Draws a graphical representation of the points scored by team B.
His graphical representation is given below.

10 Suman says, "Arun's graphical representation is not appropriate."
Do you agree with Suman? Mention YES or NO. Give reason to justify your choice.

_____

_____

Answers

Item Number	
Question Code	SAS21M09S1401
Grade & Chapter Name	Grade 9 | Statistics
Concept | Sub-concept	Statistics | Graphical Representation of Data
Competency	Interpret & Evaluate
Item Type	Closed Constructed Response
Full Credit (Full Score)	Bar graph
No Credit (No Score)	Any other response or missing response

Item Number	Question 2
Question Code	SAS21M09S1402
Grade & Chapter Name	Grade 9 | Statistics
Concept | Sub-concept	Statistics | Graphical Representation of Data
Competency	Employ
Item Type	Closed Constructed Response
Full Credit (Full Score)	5100 Rs 5100
No Credit (No Score)	Any other response or missing response

Item Number	Question 3
Question Code	SAS21M09S1403
Grade & Chapter Name	Grade 9 | Statistics
Concept | Sub-concept	Statistics | Graphical Representation of Data
Competency	Interpret & Evaluate
Item Type	Multiple Choice Question
Full Credit (Full Score)	C. Rs 5500
No Credit (No Score)	Any other response or missing response

Item Number	Question 4
Question Code	SAS21M09S1404
Grade & Chapter Name	Grade 9 | Statistics
Concept | Sub-concept	Statistics | Graphical Representation of Data
Competency	Employ
Item Type	Multiple Choice Question
Full Credit (Full Score)	C. $\frac{18}{25}$
No Credit (No Score)	Any other response or missing response

Item Number	Question 5
Question Code	SAS21M09S1405
Grade & Chapter Name	Grade 9 | Statistics
Concept | Sub-concept	Statistics | Graphical Representation of Data
Competency	Employ
Item Type	Multiple Choice Question
Full Credit (Full Score)	B. 9
No Credit (No Score)	Any other response or missing response

Item Number	Question 6
Question Code	SAS21M09S1406
Grade & Chapter Name	Grade 9 | Statistics
Concept | Sub-concept	Statistics | Graphical Representation of Data
Competency	Interpret & Evaluate
Item Type	Closed Constructed Response
Full Credit (Full Score)	Divya with valid explanation Divya, since only 25 females were tested.
No Credit (No Score)	Any other response or missing response

Item Number	Question 7
Question Code	SAS21M09S1407
Grade & Chapter Name	Grade 9 | Statistics
Concept | Sub-concept	Statistics | Graphical Representation of Data
Competency	Employ
Item Type	Multiple Choice Question
Full Credit (Full Score)	A. 6
No Credit (No Score)	Any other response or missing response

Item Number	Question 8
Question Code	SAS21M09S1408
Grade & Chapter Name	Grade 9 | Statistics
Concept | Sub-concept	Statistics | Graphical Representation of Data
Competency	Interpret & Evaluate
Item Type	Closed Constructed Response
Full Credit (Full Score)	Team B with valid reasoning Team B scored more than team A as during the last 5 minutes, the score of team B is 13 and the score of team A is 8 in the last five minutes.
No Credit (No Score)	Any other response or missing response

Item Number	Question 9
Question Code	SAS21M09S1409
Grade & Chapter Name	Grade 9 | Statistics
Concept | Sub-concept	Statistics | Graphical Representation of Data
Competency	Employ
Item Type	Closed Constructed Response
Full Credit (Full Score)	9 9 points
No Credit (No Score)	Any other response or missing response

Item Number	Question 10
Question Code	SAS21M09S1410
Grade & Chapter Name	Grade 9 | Statistics
Concept | Sub-concept	Statistics | Graphical Representation of Data
Competency	Interpret and evaluate
Item Type	Closed Constructed Response

Full Credit (Full Score)	No, with at least one of the two aspects focussed
	    Inappropriate scale for horizontal axis.
	    Incorrect data representation for interval 15 – 20.
	No, The time scale is should be continuous
	No, the data for the interval needs to be 0

No Credit (No Score)	Any other response or missing response