Date of Examination

No of Questions	25
No. of Pages	7

GENERAL SIR JOHN KOTELAWALA DEFENCE UNIVERSITY

SELECTION TEST FOR THE ENROLLMENT OF DAY SCHOLARS - INTAKE 41
BSc in Applied Data Science Communication

SUBJECT KNOWLEDGE - 2023

Call up No:- ..... **NIC No:- ……**

General Instructions: **Duration: 01 hour**

Answer ***all questions*** in this paper itself.

01 mark for each correct answer.

Section A - Subject Knowledge

Q.1

Evaluate the expression: $(0.1 + 0.1 + 0.1) \times (0.1 - 0.1)$

A: 0.01 **B**: 0.001 **C**: 0 **D**: 0.1 **E**: Undefined

Q.2

If the price of 7 notebooks is 84 rupees, what is the price of one notebook?

A: 6 **B**: 8 **C**: 10 **D**: 12 **E**: 14

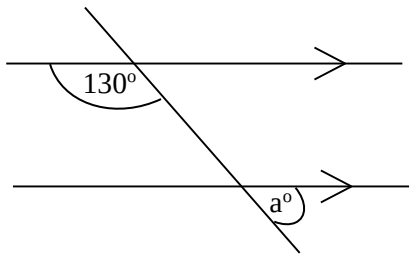
Q.3

If $7x - 3 = 0$, find the value of x.

A: 1/7 **B**: 3/7 **C**: 1 **D**: 3 **E**: 7

Q.4

Find the value of a^o in the figure.



A: 50^o **B**: 90^o **C**: 130^o **D**: 180^o **E**: It cannot be determined without additional information

Q.5

What is the percentage discount applied when a shirt originally priced at 800 rupees is sold for 600 rupees?

A: 10% **B**: 20% **C**: 25% **D**: 30% **E**: 40%

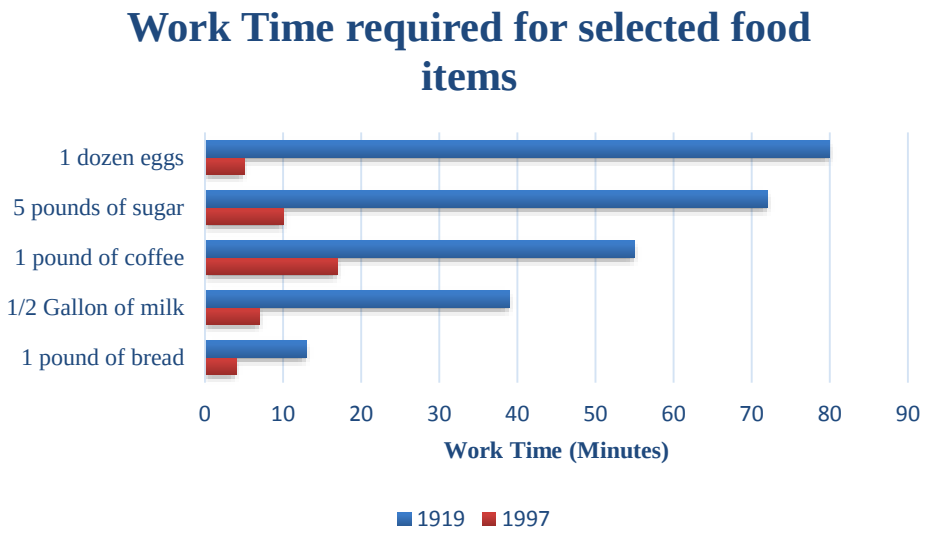
Q.6

Simplify: $\frac{6}{x} - \frac{2}{x}$

A: $\frac{4}{x}$ **B**: $\frac{2}{x}$ **C**: $\frac{(6-2)}{x}$ **D**: $\frac{(6+2)}{x}$ **E**: $\frac{(6-2)}{2x}$

Questions 7 to 8 are based on the following data.

Q.7



In 1997, which food item required the longest work time to pay for?

A: 1 pound of bread
B: 1/2 gallon of milk
C: 1 pound of coffee
D: 5 pounds of sugar
E: 1 dozen eggs

Q.8

Between 1919 and 1997, which food item experienced the greatest decrease in the work time required to pay for it?

A: 1 pound of bread
B: 1/2 gallon of milk
C: 1 pound of coffee
D: 5 pounds of sugar
E: 1 dozen eggs

Q.9

Express 0.025 meters in millimeters

A: 0.025mm **B**: 2.5mm **C**: 25mm **D**: 250mm **E**: 2500mm

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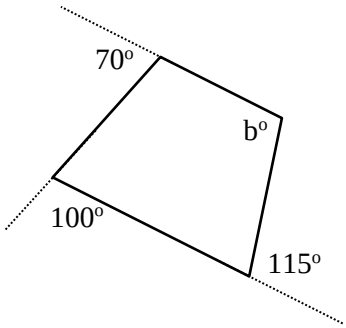
Q.10

A bag contains 4 red balls, 3 blue balls, and 5 green balls. If one ball is randomly selected from the bag, what is the probability of picking a blue ball?

A: 4/12 **B**: 3/12 **C**: 3/10 **D**: 4/10 **E**: 5/12

Q.11

Find the value of b^o based on the information in the figure.



A: 70^o **B**: 75^o **C**: 90^o **D**: 105^o **E**: 115^o

Q.12

If a car travels at a speed of 60 kilometers per hour and covers a distance of 180 kilometers, how long will it take the car to cover 1/4 of the distance?

A: 7.5 hours **B**: 2.5 hours **C**: 15 hours **D**: 0.25 hours **E**: 0.75 hours

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Q.13

The number of books read by 12 different students in a month is given below:

3 2 1 4 2 5 3 4 1 2

Find the mode and range of the number of books read.

A: Mode: 2, Range: 4
B: Mode: 3, Range: 4
C: Mode: 2, Range: 5
D: Mode: 4, Range: 3
E: Mode: 1, Range: 5

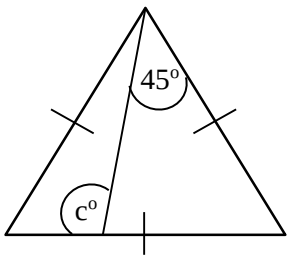
Q.14

Factorize the expression: $4y^2 - y - 3$

A: $(2y-1)(2y+3)$
B: $(4y+3)(y-1)$
C: $(2y+1)(2y-3)$
D: $(4y-1)(y+3)$
E: $(2y-3)(2y+1)$

Q.15

Find the value of c^o based on the information in the figure.



A: 30^o **B**: 45^o **C**: 60^o **D**: 75^o **E**: 105^o

Q.16

Make a the subject of $s = ut + \frac{1}{2}at^2$.

A: $\frac{(s-ut)}{2t^2}$ **B**: $\frac{t^2(s-ut)}{2}$ **C**: $\frac{2(ut-s)}{t^2}$ **D**: $\frac{2(s-ut)}{t^2}$ **E**: $\frac{2t^2}{(s-ut)}$

Q.17

If it takes 8 workers 12 days to build a bridge, how many days would it take 12 workers to build the same bridge?

A: 4 **B**: 6 **C**: 8 **D**: 10 **E**: 16

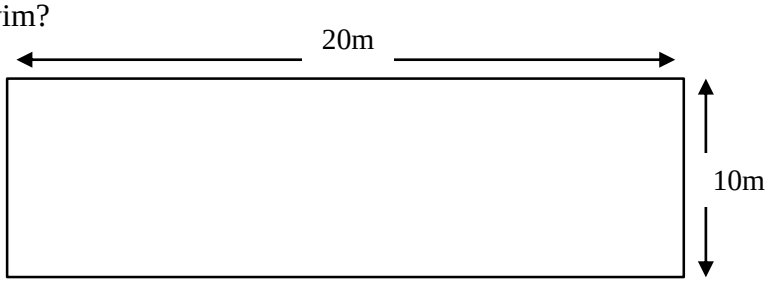
Q.18

Find the gradient and intercept of the straight line passing through the points (2,5) and (0,3)

A: Gradient: 1, Intercept: 3
B: Gradient: 1/2, Intercept: 3/2
C: Gradient: 2, Intercept: 3/2
D: Gradient: -1 /2, Intercept: 3/2
E: Gradient: -1 Intercept: 3

Q.19

The diagram shows a rectangular swimming pool. There is a straight path marked from one corner of the pool to the opposite corner, forming a diagonal across the pool. If a person swims from one corner to the other following the path, how far do they swim?



A: 10m **B**: 20m **C**: 22.36m **D**: 30m **E**: 33.37m

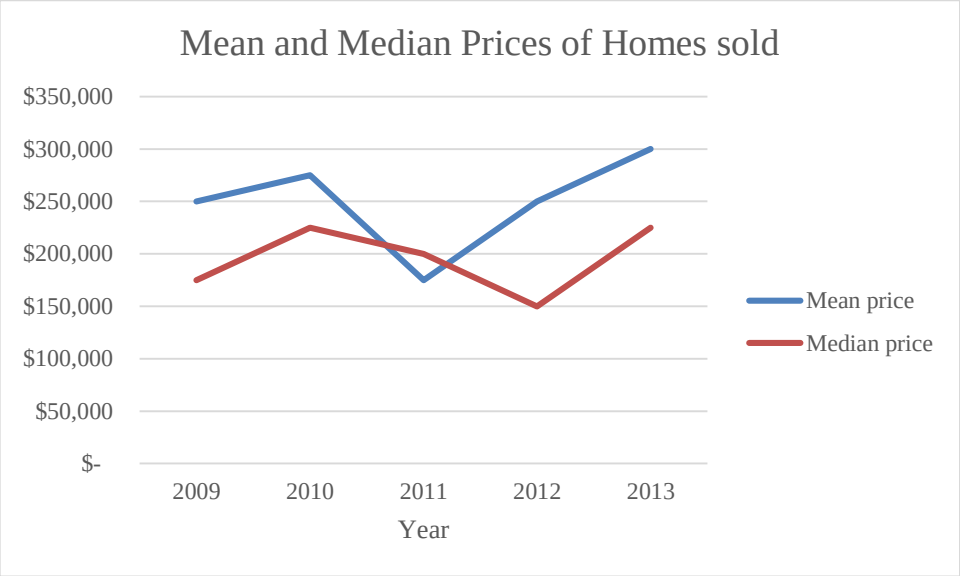
Q.20

A map has been drawn to the scale 1:25000. By what length is an actual distance of 2 kilometers represented on the map?

A: 0.08cm **B**: 8cm **C**: 800cm **D**: 80cm **E**: 0.8cm

Questions 21 to 23 are based on the following data.

Year	Number of Homes sold
2009	503
2010	351
2011	390
2012	410
2013	290



Q.21

Among the following options, which value is closest to the mean of the prices of the homes sold in the combined years of 2012 and 2013?

A: $270,000 **B**: $280,000 **C**: $250,000 **D**: $275,000 **E**: $285,000

Q.22

Approximately, what percentage decrease did the median price of homes sold from 2011 to 2012?

A: 25% **B**: 50% **C**: 33% **D**: 15% **E**: 10%

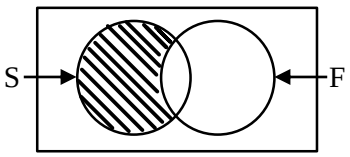
Q.23

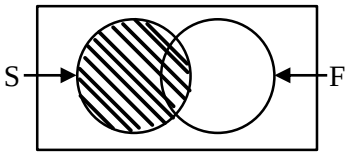
Which of the following statements is true regarding the number of the homes sold in a specific year?

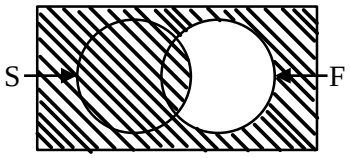
A: The total number of homes sold in 2009 and 2010 combined is greater than the total number of homes sold in 2011 and 2012 combined.
B: The total number of homes sold in 2010 is greater than the total number of homes sold in 2011.
C: The total number of homes sold in 2012 is equal to the total number of homes sold in 2013.
D: The total number of homes sold in 2009 is greater than the total number of homes sold in 2013.
E: The total number of homes sold in 2011 is equal to the total number of homes sold in 2012 and 2013 combined.

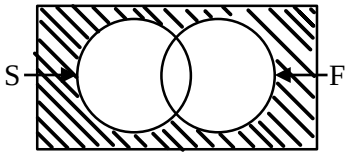
Q.24

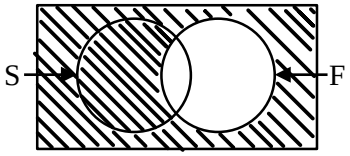
Consider a group of students who are studying two languages: Spanish (S) and French (F). Select the Venn diagram that correctly represents students who do not study French.

A: 

B: 

C: 

D: 

E: 

Q.25

Find the value of y.

If $\begin{pmatrix} 4 & -1 \\ 0 & 2 \\ -5 & 1 \end{pmatrix} + \begin{pmatrix} 3 & 4 \\ 1 & -1 \\ 0 & y \end{pmatrix} = \begin{pmatrix} 7 & 3 \\ 1 & x \\ -5 & x \end{pmatrix}$

A: 0 **B**: 1 **C**: –1 **D**: 2 **E**: –2
