SKYVIEW EXAMINATIONS BOARD-KAMPALA

PRE-PLE (S.E.B) EXAMINATIONS - 2021

Set - 01

MATHEMATICS

Time allowed: 2 hours 30 minutes

Index number: | | | | | | | | | |

Candidate's Name: ……

Candidate's Signature: ……..

School Name: ……..

District Name: ……..

Read the following instructions carefully:

1. The paper has **two** sections: **A** and **B**
2. Section **A** has 20 short questions (40 marks)
3. Section **B** has 12 questions (60 marks)
4. Answer **ALL** questions. All answers to both Sections **A** and **B** must be written in the spaces provided.
5. All answers must be written using a blue or black ball point pen or ink. Diagrams should be drawn in pencil.
6. Unnecessary alteration of work may lead to loss of marks
7. Any handwriting that cannot be easily read may lead to loss of marks.
8. Do **not** fill anything in the boxes indicated for Examiner's use only. ***Turn over***

FOR EXAMINER'S USEONLY

Qn. No	MARK	SIGN
1 – 10		
11 – 20		
21 – 30		
31 – 32		
TOTAL		

SECTION A

1.Multiply

3 6

x 8

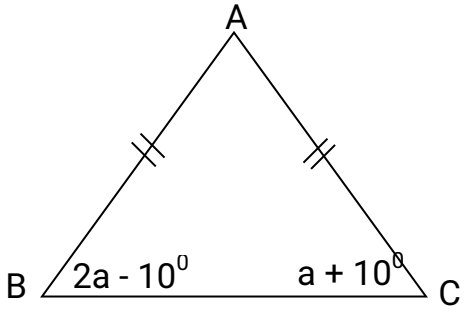
___

2. Write in figures: One million ten thousand one hundred one.

3. Change 37_{ten} to binary base

4. Express 44 in roman numerals

5. In the figure below, calculate the size of angle BAC



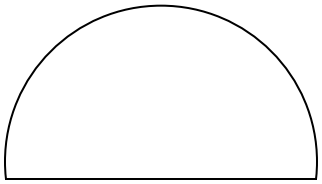
6. Find the next number in the sequence.
   2, 1, ½, ¼, _____

7. Solve: $\frac{2x}{3} - 3 = 3$

8. Given that ε = {a, b, c, d, e, f}
P = {a, e, i, o, u}
Find $n(P^{l})$

9. Six workers can do a piece of work in 4 days. How many workers are needed to do the same piece of work in 1½ days?

10. Mr. Okello has a semi-circular flower bed in front of his house as shown below. Its perimeter is 36*dm*. What is its radius?

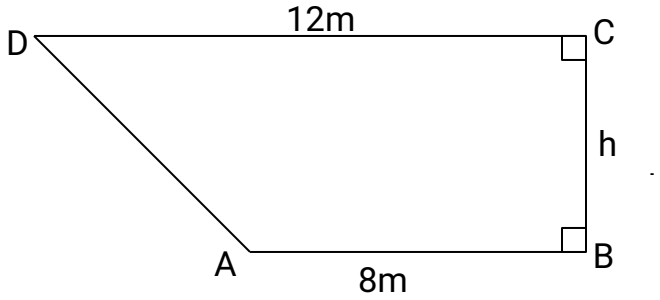


11. Simplify: $\bar{}10 - \bar{}5$

12. In a bag, there are 8 white balls and 6 black balls. If Ashura is asked to pick a ball at random, what is the probability of picking a black ball?

13. What percentage of 3*kg* is 0.45*kg*?

14. The figure below represents a sitting room plan of a house in which AB = 8*m*, CD = 12*m* with an area of 70m^2. What is the value of *h* in the plan?

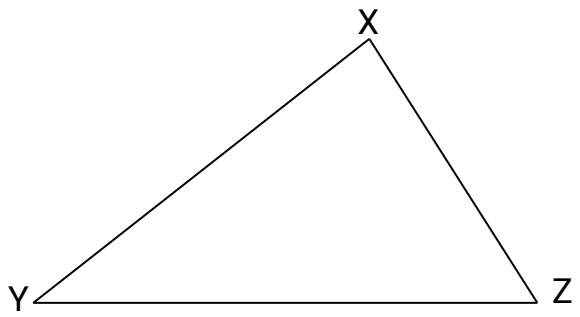


15. The mean of 2, 4, 5, 3 and a is a – 2. Find the value of a.

16. A cyclist covered a distance of 7*km* from 11:15*am* to 12*noon*. At what speed was he riding?

17. Solve the inequality: $2x - 2 \leq 4$

18. Using a ruler, a pair of compasses and a pencil only construct a perpendicular bisector of line XY.



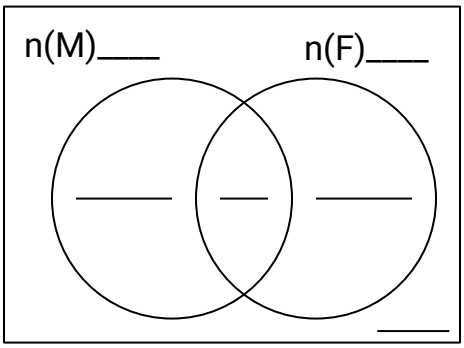
19. Shem and Sheila shared a certain amount of money in which Shem got shs. 35,000 and Sheila received shs. 40,000. In what ratio did they share the money?

20. Given that: a = ¯3, b = 8 and c = ¯3. Find the value of a (b + c)

SECTION B

21. In a family of 15 people, 10 people eat meat (M), *x* people like fish (F), 5 people eat both meat and fish while 2 people don't eat any of the foods.

(a) Represent the information on the venn diagram. (3 Marks)

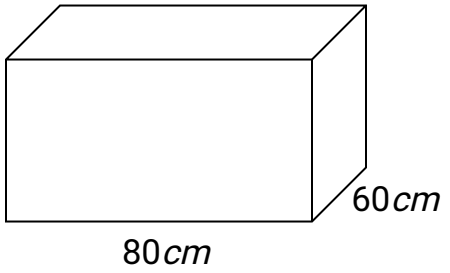


(b) How many people like fish only? (2 marks)

(c) Find the number of people who like only one type of food.(1mark)

22. By selling an article at shs. 92,000, a trader made a profit of 15%. Calculate the price at which it was bought. (3marks)

23(a) The figure below shows a petrol tank that can hold 192 litres when full. Calculate the depth of the tank. (4 marks)



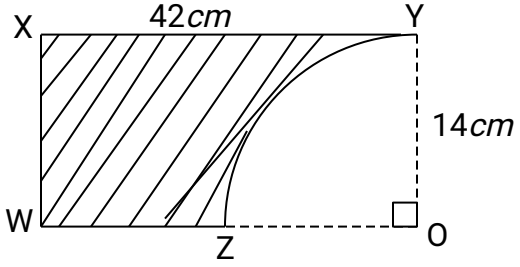
(b) Given that the cost of petrol is shs. 1850 per litre, how much money will be needed to fill the tank? (2 marks)

24(a) Simplify: $\frac{0.52 \times 3.2}{0.16}$ (3 marks)

(b) Work out: ¼ of $(1 - {}^{2}/_{3})$ (2 marks)

25. A ${}^{1}/_{3}$ of the members in a community support the NRM and ${}^{2}/_{5}$ of the remainder support FDC. The rest belong to UPC. If 420 members support UPC, how many support NRM? (4 marks)

26. Study the figure below and answer questions that follow.



(a) Find the area of YZO. (2 marks)

(b) Calculate the area of the rectangle XYWO (2 marks)

(c) What is the area of the shaded region? (1 mark)

27. A motorist left Kampala for Jinja at 7:30am reaching Jinja 80km away at 9:30am. The same taxi left Jinja for Kampala at 10:00am and arrived at Kampala at 11:30am.

(a) What was his speed from Kampala to Jinja? (2 marks)

(b) Calculate its average speed for the whole journey. (4marks)

28(a) Solve: $2(3y - 5) - 3(1 - y) = 14$ (2 marks)

(b) Kainza, Kizito and Sam shared some money. Kainza got shs. 3,000 less than Kizito and Sam got twice as much as Kainza. They had shs. 12,000 altogether. How much did Kizito get? (3 marks)

29. A ship left port A on the bearing of 150^0 to port B, a distance of $50km$. It then left B on the bearing of 070^0 to C a distance of $60km$.

(a) Draw a sketch to represent its route. (1 mark)

(b) Using a scale $1cm = 10km$, draw an accurate diagram to show the journey and find the shortest distance between A and C. (4 marks)

30. Okwiri went to the market and bought the following:-
2½ kg of salt at shs. 600 per kilo
500gm of sugar at shs. 1800 per kilo
½ kg of rice at shs. 600
250gm of tea leaves at shs. 400 per kilo

(a) Calculate how much he spent altogether. (4 marks)

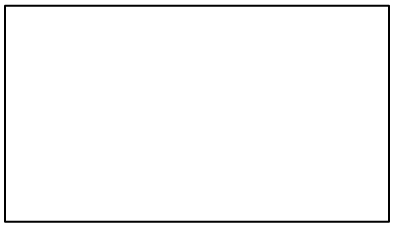
(b) If he was given a discount of 5%, what was his balance given that he had shs. 10,000? (2 marks)

31. A Mango telecom salesman sold juice cards each worth shs. 10,000 numbered 70864572 to 70864771.

(a) How many juice cards were sold? (2 marks)

(b) How much money was collected from the sales? (1 mark)

32. The figure below represents a rectangular metallic sheet to be folded to make a cylindrical tank.



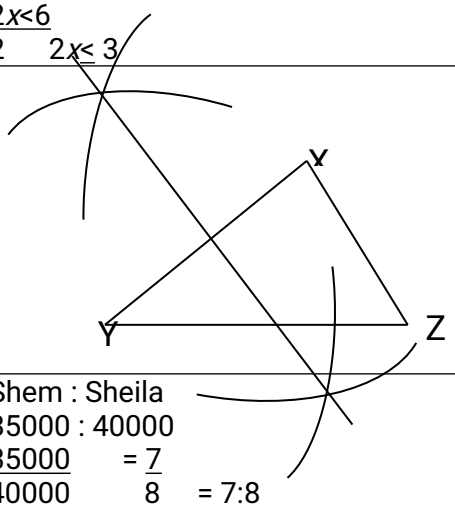
(a) Find the area of the circular sheet needed to cover the bottom.(3marks)

(b) How many litres of water can the tank hold when full? (3 marks)

Shalom

SKYVIEW EXAMINATIONS 2021 MARKING GUIDE PRE PLE SET 01

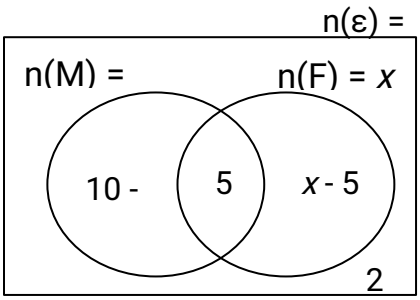
1.	36 x 8 288	B_1	Accept 288 on sight
2.	1,010,101	B_1	Accept on sight
3.	2 | 37 2 | 18 r 1 2 | 9 r 0 2 | 4 r 1 2 | 2 r 0 1 r 0 = 100101_{two}	B_1	Follow through
4.	44 = 40 + 4 XL + IV = XLIV	B_1	Follow through
5.	2a − 10 = a + 10 2a − 10 + 10 = a + 10 + 10 2a = a + 20 2a − a = a − a + 20a = 20	B_1	Follow through
6.	2, 1, ½, ¼, _____ 2 ÷ 2 = 1 1 ÷ 2 = ½ ½ ÷ 2 = ½ x $^2/_2$ = ¼ ¼ ÷ $^2/_1$ = ¼ x ½ = $^1/_8$	B_1	Follow through B_o without working
7.	$^2/_3x$ − 3 = 3 $^2/_3x$ − 3 + 3 = 3 + 3 6 x $^2/_3x$ = 6 x 6 $^{2x}/_2$ = $^{36}/_2x$ = 18	B_1	Follow through working
8.	P^I = {b, c, d, f}n(P^I) = 4	B_1	Set P^I must be indicated
9.	4 days need 6 workers 1 day needs 6 x 4 1½ days need (6x4) ÷ 1½ (6x4) ÷ $^3/_2$ 24 x $^2/_3$ 8 x 2 = 16 workers	B_1	Follow through
10.	Perimeter = length of arc + diameter P = ½ π d + d 36cm = ½ x $^{22}/_7$d + d 36cm = $^{11}/_7$d + d 7 x 36cm = $^{11}/_7$d x 7+7 x d 7 x 36cm = 11d + 7d 7 x 36cm = 18d 18 18 14 = d ∴r = $^{14}/_2$ = 7cm	B_1	Follow through
	OR: P = ½ 2πr + 2r 36cm = ½ x 2x $^{22}/_7$πr + 2r 36cm= $^{22}/_7$r + 2r 7 x 36cm = $^{22}/_7$r x 7 + 2r x 7 7 x 36cm = 22r + 14r 7 x 36cm = 36r 36 36 7cm = r		
11.	- 10 - ¯5 = - 10 + 5 = -5	B_1	Accept -5 on sight
12.	Total 8 + 6 = 14 balls Desired chance = 6	B_1	Working must be shown

	Total chance = 14 P = $\frac{DC}{TC}$ $\frac{6}{14}$ or $\frac{3}{7}$		
13.	$\frac{0.45kg}{3kg}$ x 100 $\frac{0.45kg \times 100}{3kg \times 100}$ x 100 = $\frac{45 \times 100}{300}$ = 15%	B_1	Follow through
14.	A = ½ h (a + b) $70m^2$ = ½ h (8m + 12m) $70m^2$ = ½ h (20m) $\frac{70m^2}{10m} = \frac{10hm}{10m}$ 7m = h	B_1	Follow through Insist on units
15.	Mean = $\frac{sum}{No.}$ $a - 2 = \frac{2 + 4 + 5 + 3 + a}{5}$ $a - 2 = \frac{14 + a}{5}$ $5(a - 2) = \frac{14 + a}{5} \times 5$ 5a − 10 = 14 + a 5a − 10 + 10 = 14 + 10 + a 5a = 24 + a 5a − a = 24 + a − a $\frac{4a}{4} = \frac{24}{4}$ 4a = 6	B_1	Follow through all steps
16.	Time taken = 12:00 -11:15 45 min D = 7km and S = D ÷ T S = 7km ÷ $^{45}/_{60}$ S = 7km ÷ $^{3}/_{4}$ S = 7km x $^{4}/_{3}$ S = $^{28}/_{3}$ S = $9^{1}/_{3}$ kph	B_1	Follow through all the steps
17.	$2x - 2 \leq 4$ $2x - 2 + 2 \leq 4 + 2$ $\frac{2x}{2} < \frac{6}{2}$ $2x \leq 3$	B_1	Follow through
18.		B_1	Check construction arcs
19.	Shem : Sheila 35000 : 40000 $\frac{35000}{40000} = \frac{7}{8}$ = 7:8	B_1	Follow through

20.	a(b + c) = -3(8 + ¯3) -3 (5)= -15	B_1	Follow through

Section .21.

(a)



B_3 for all entries correct
B_2For 6 entries correct
B_1For 5 entries correct
B_0For 4 entries correct

(b)10 − 5 + 5 + x − 5 + 2 = 15
10 + x − 5 + 2 = 15
10 + 2 − 5 + x = 15
7 + x = 15
7 − 7 + x = 15 − 7
x= 8
∴8 − 5 = 3
3 children like fish onlyA_1
For collecting like terms M_1

For correct answer**(c)**Meat only = 10 − 5 = 5
Fish only = 3
Total 8 + 3 = 11

B_1

For correct answer***(7marks)***

22.S.P = 100% + 15% = 115%
S.P in cash = 92000/=
C.P = 100%
Let the C.P be x
$\frac{115x}{100}$ = 92000
100 x $\frac{115x}{100}$ = 92000 x 100
$115x$ = 92000 x 100
115 115
x = 4000 x 20
x= 80,000B_1

B_1For equation
M_1For correct councelling
A_1For correct answer

(4marks)**OR:** 115% = 92000
1% = $\frac{92000}{}$

$$\therefore 100\% = \frac{92000 \times 100}{115}$$

4000 x 20 = 80,000

23.

(a)1 litre = 1000cm
192 litres = 192 x 1000
= 192000 c.c
Let the height be m
V = L x W x H
192000c.c = 80cm x 60cm x m

$$\frac{192000c.c}{80cm \times 60cm} = \frac{80cm \times 60cm \times m}{80cm \times 60cm}$$

40cm = m

B_1

M_1
M_1

A_1

For changing litres to c.c

For correct equation
For councelling

For correct answer

(b)I litre costs 1850
192 litres will cost

$$\begin{array}{r} 1850 \\ \times 192 \\ \hline 3700 \\ 16650 \\ +1850 \\ \hline \text{= shs} \quad 355{,}200 \end{array}$$

M_1

A_1

For correct multiplication

For correct answer

***(6marks)*24.**

(a) $\frac{0.52 \times 3.2}{0.16}$

$\frac{0.52 \times 100 \times 3.2 \times 10}{0.16 \times 1000}$

$\frac{52 \times 32}{160}$

10.4

$5\sqrt{52}$

$\underline{-50}$

20

20 = 10.4

M_1

M_1

A_1

For long division

Correct answer

OR: $\frac{52}{100} \times \frac{32}{10} \div \frac{16}{100}$

$\frac{52}{100} \times \frac{32}{10} \times \frac{100}{16}$

$\frac{104}{10}$ = 10.4

(b) $^1/_4$ of $(1 - {}^2/_3)$

¼ of $({}^3/_3 - {}^2/_3)$

¼ of $({}^1/_3)$

¼ x $^1/_3$

= $^1/_{12}$

M_1

A_1

Simplify brackets

Correct answer ***(5marks)***

25. Fraction supporting NRM = $^1/_3$

Remainder $^3/_3 - {}^1/_3 = {}^2/_3$

Fraction supporting FDC =

$^2/_5 \times {}^2/_3 = {}^4/_{15}$

Total NRM + FDC

$^1/_3 + {}^4/_{15} = \frac{5+4}{15} = \frac{9}{15} = \frac{3}{5}$

Remaining fraction (UPC)

$\frac{5}{5} - \frac{3}{5} = \frac{2}{5}$

$^2/_5$ represents 420

$^1/_5$ represents 420 ÷ 2 = 210

$^5/_5$ represents 210 x 5 = 1050 people

NRM supporters = $^1/_3$ x 1050 = 350 pple

B_1

B_1

B_1

B_1
M_1

A_1
B_1
For remainder

For FDC fraction

For sum of NRM and FDC

For remaining fraction
For correct equation

For correct answer
For correct answer***(7marks)***
26.
(a) Area of YZO
¼ π r^2
A = ¼ x $^{22}/_{7}$ x 14 x 14
11 x 14 = 154cm^2

M_1
A_1

For correct councelling
For correct answer**(b)**Area of rectangle
L = 42cm
W = 14cm
A = L x W = 42cm x 14cm

42
x 14
168
+42
A = 588cm^2

M_1
A_1
For correct substitution

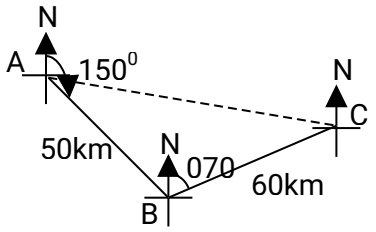
Correct answer**(c)**Area of shaded region
588cm^2
- 154cm^2
434 cm^2
B_1
For correct answer, insist on units***(5marks)***
27.

(a) Kla to Jinja
Time taken 9:30
-7:30
2:00 = 2 hrs
D = 80km
S = D = 80km
T 2 = 40kph

B_1
A_1
For time taken

Insist on units**(b)**Resting time
10:00
-9:30
30 minutes
Jinja to Kampala
Time taken
11:30
-10:00
1:30 minutes
30
60 min = 1½ hrs

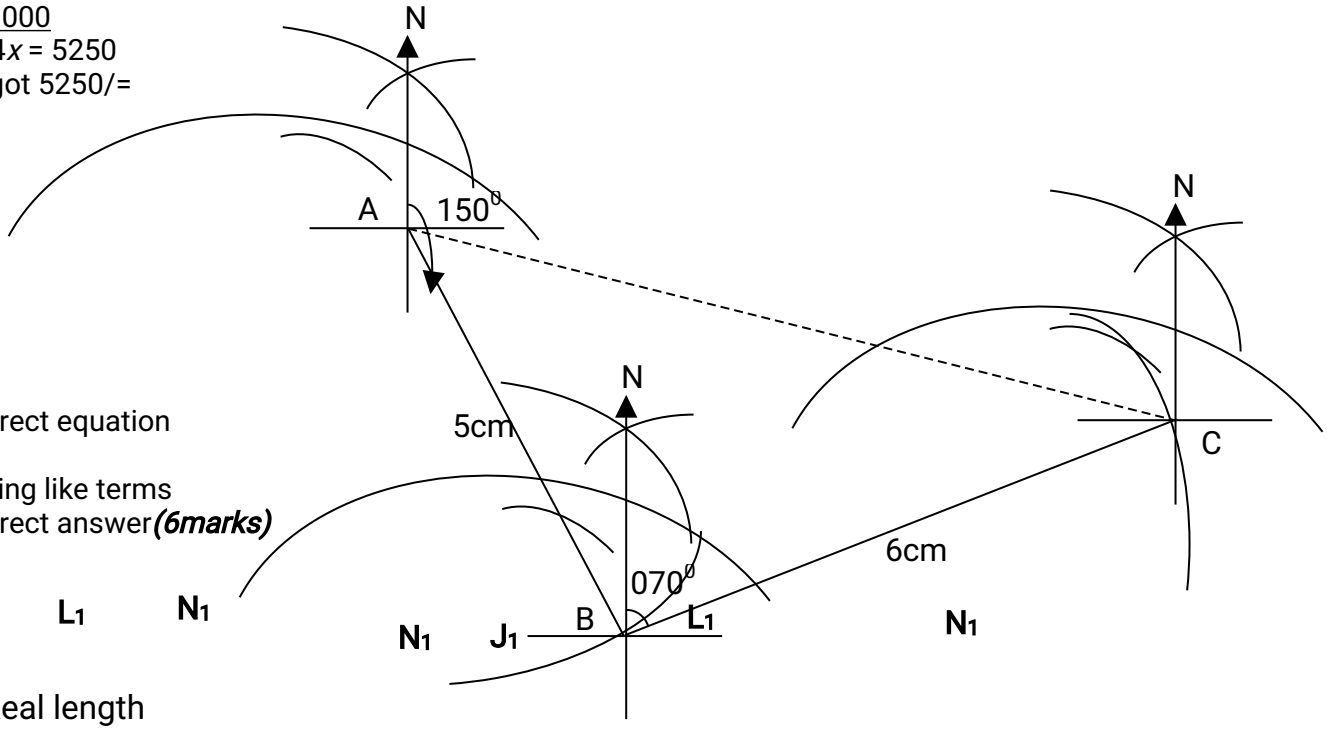
Average speed = Total distance
Total time
Av. Speed = 80km + 80km
2hr + 30min + 1½ hrs
Av. Speed = 160km
2 + ½ + 1½ hrs
Av. Speed = 160km
4hrs
Av. Speed = 40km/hr



B_1
B_1
M_1
B_1
For resting time
For return journey
For correct substitution
For correct answer***(6marks)***
28.
(a)2(3y − 5) − 3(1-y) = 14
6y − 10 − 3 + 3y = 14
6y + 3y − 3 − 10 = 14
9y -13 = 14
9y − 13 + 13 = 14 + 13

9y = 27
9 9 y = 3
M_1
M_1
A_1
Opening brackets correctly
Collecting like terms

Correct answer**(b)**Let Kizito's share be x
Kainza $x - 3000$
Sam $2(x - 3000)$
$x + x - 3000 + 2(x - 3000) = 12000$
$2x - 3000 + 2x - 6000 = 12000$
$2x + 2x - 3000 - 6000 = 12000$
$4x - 9000 + 9000 = 12000 + 9000$
$\frac{4x}{4} = \frac{21000}{4}$
$4x = 5250$
Kizito got 5250/=



M_1
M_1
A_1

For correct equation

Collecting like terms
For correct answer***(6marks)***

29.
(a) L_1 N_1 N_1 J_1 L_1 N_1

S_1**(b)**Real length
Drawing length

AB
50km
$^{50}/_{10} = 5$cm

BC
60km
$^{60}/_{10} = 6$cm

AC = 8.5cm $\pm$ 1
8.5 x 10 = 85km**B_1**for accuracy
(8marks)

30.
(a) Salt: 2½ kg
1 kg costs 600/=
1½ kg cost 1½ x 600
$^{3}/_{2}$ x 600
= shs 900
Sugar: $\frac{500}{1000}$ x 1800
18 x 50
180
x 5
900/=
Rice: 600/=

Tea leaves: 250 x 400
1000 25 x 4 = 100/=
Total
900
900
600
+100
2500/=
B_1

B_1

B_1
B_1
For cost of salt

For cost of sugar
For cost of tea leaves

For total cost
(b)%paid = 100% - 5% = 95%
95 x 2500
100

95
x25
475
+190
2375
Balance = 10000
-2375
76

B_1

B_1

For balance***(6marks)***
31.
(a) No. of juice cards
70864771
-70864572
199199 + 1 = 200 cards
M_1

A_1
For correct substitution

For correct answer**(b)**1 card is worth 10,000
200 cards = 10000 x 200= shs. 2,000,000
B_1
For correct answer***(3marks)***

32.
(a) Radius of cylindrical tin
$C = 2\pi r$

88cm = 2 x $^{22}/_{7}$r
88cm = $^{44}/_{7}$r
7 x 88cm = $\frac{7 \times 44r}{7}$
$\frac{7 \times 88cm}{44}$ = $\frac{44r}{4414cm}$ = r

M_1

M_1
A_1
For correct substitution
Collection of like terms
Correct answer**(b)**V = $\pi r^2 h$
V = $\frac{22}{7}$ x 14 x 14 x 70
V = 22 x 14 x 14 x 10
V = 43120c.c
1000 c.c = 1litre
1 c.c = $^{1}/_{1000}$
$\therefore$ 43120 c.c = $^{1}/_{1000}$ x 43120
= 43.12 litresM_1
A_1
M_1
A_1
For correct councelling
Correct answer***(7marks)***