

(iv) Find the remaining volume of metal in cubic centimetres when the cylinders given in above (iii) are made.

.....

(20 marks)

13. Customs duty of 14% has to be paid when a certain item is imported. The value of the item without the duty is 8 000 rupees.

(i) How much is the customs duty in rupees?

.....

(ii) If the vendor who imported this item marks its selling price as 10 944 rupees, what is the profit percentage he expected to be earned?

.....

(iii) If a discount of $3\frac{1}{3}\%$ is given from the marked price when the item is sold for cash, how much is the discount in rupees?

.....

(iv) What is the vendor's profit in rupees, if he sold the item with the above discount?

.....

(20 marks)

* * *

සියලුම විෂයන් දැක්වෙයි
 (முழுப் பரீட்சைப்பரீட்சைகளுக்காக)
 All Rights Reserved

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව / இலங்கைப் பரீட்சைத் திணைக்களம் / Department of Examinations, Sri Lanka
 Open Competitive Examination for Recruitment to the Posts of Inspector of Customs, Grade II
 of Sri Lanka Customs Department - 2017 (2018)

(02) Mathematics

One hour

Instructions to Candidates

Important :

- * This paper consists of 13 questions on 06 pages.
- * Before answering the paper arrange all the pages in order.
- * Answer all questions on this paper itself. Use the space provided under each question to work and write the answer clearly.
- * The time allowed is one hour.
- * Commence answering only after the Centre Supervisor's announcement.
- * Calculators should not be used.
- * Instructions given should be strictly followed in answering this paper and marks will not be awarded for answers not in accordance with these instructions.
- * Even if you are not attempting the paper hand it over to the Supervisor.
- * Write the answers clearly and legibly in blue or black ink only and not in pencil.
- * It is an offence to remove this paper from the examination hall or turn out photocopies of the same.
- * Answer scripts with illegible figures, illegible handwriting, written with a pencil, those where erasing fluid has been used and will not be marked/evaluated.

Write your Index Number here and on page 3 in the spaces indicated.

Checked as correct

Invigilator's Initials

For Examiner's use only

Part	Question No.	Marks Awarded
I	1 - 10	
	11	
II	12	
	13	
Total		

Final Score

In figures: _____
 In words: _____
 Marking Examiner: _____
 Checked by: _____

Part I

1. Simplify : $\left(\frac{1}{4} - 2\frac{2}{5}\right) + 1\frac{7}{10}$

.....

2. Solve : $2x - 3(6x - 4) + 20 = 0$

.....
.....
.....
.....

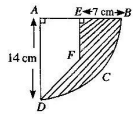
3. Find the factors of the following expressions:

(i) $x^2 - 2x - 24$

(ii) $3x^2y - 27y^3$

.....
.....
.....
.....

4. In the given figure, $ABCD$ is a sector of a circle and ABD is a triangle. Find the area of the shaded region. (Use $\frac{22}{7}$ for the value of π .)



.....
.....
.....
.....

5. The sum of the first two terms of an arithmetic progression is 11. The third term is 1. Find the first term and the common difference of this progression.

.....
.....
.....
.....

[See page three.]

(iii) If the number of customers who bought only chick peas is 7, how many bought both chick peas and rice?

.....
.....

(iv) How many bought only rice?

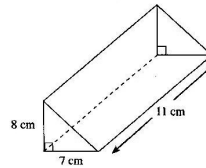
.....
.....

(v) How many bought at least two of these items out of these three items?

.....
.....

(20 marks)

12. The cross section of a solid right prism made of metal takes the shape of a right angled triangle. The two sides that include the right angle are of length 8 cm and 7 cm.



(The volume of a solid right circular cylinder of radius r and height h is $\pi r^2 h$. Use $\frac{22}{7}$ for the value of π .)

(i) Find the area of the cross section of the prism in square centimetres.

.....
.....

(ii) If the length of the prism is 11 cm, find its volume in cubic centimetres.

.....
.....

(iii) What is the maximum number of solid right circular cylinders of radius 3.5 cm and height 1.5 cm can be made with the metal obtained by heating the prism?

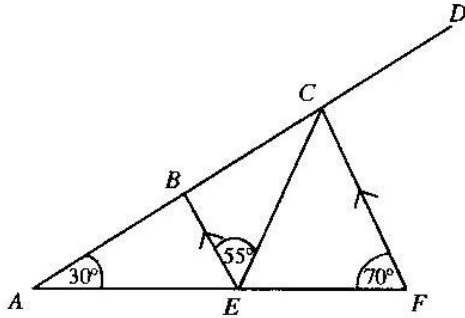
.....
.....

[See page six.]

6. In the given figure, $ABCD$ and AEF are straight lines and $EB \parallel FC$.

Moreover, $\hat{BAE} = 30^\circ$, $\hat{BEC} = 55^\circ$ and $\hat{CFE} = 70^\circ$. Find the magnitude of each angle given below.

- (1) \hat{BEF} (2) \hat{FCD} (3) \hat{ABE} (4) \hat{BCE}



.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

7. Of the spectators at a cricket match, $\frac{4}{7}$ were seated and the rest 1 500 were standing.

(i) How many spectators were seated?

.....

.....

.....

(ii) If the number of female spectators was 1 250, write the ratio of the female spectators to the male spectators in its simplest form.

.....

.....

.....

8. The mean of the masses of 6 children is 34 kg. The mean of the masses of another 3 children is 37 kg. Find the mean of the masses of these 9 children.

.....

.....

.....

.....

.....

9. Write the equation of the straight line that passes through the points (0, 4) and (2, -2) in the form of $y = mx + c$.

.....
.....
.....

10. A person who took a loan of 12 000 rupees at a simple interest rate, settled the loan in 6 months by paying 12 900 rupees.

(i) What is the annual simple interest rate charged?

.....
.....
.....

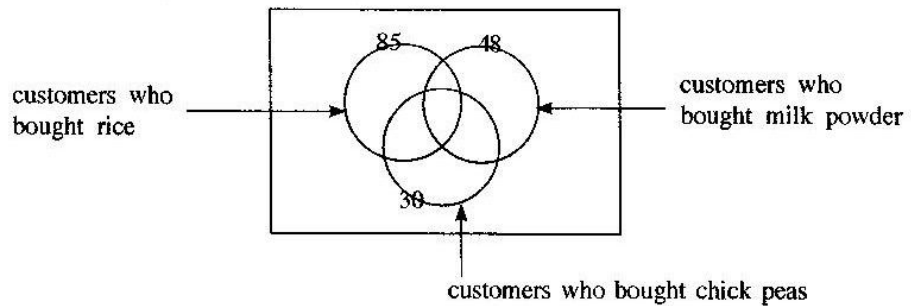
(ii) If this loan amount is taken for two years at the above annual simple interest rate, what is the total interest that has to be paid at the end of the two years?

.....
.....
.....

(04 × 10 = 40 marks)

Part II

11. Information gathered on the customers who came to a certain store on a certain day and the items bought by them are shown in the given Venn diagram. According to the information, 85 of them bought rice, 30 bought chick peas and 48 bought milk powder.



(i) If the number of customers who bought both rice and milk powder is 30, how many bought rice or milk powder?

.....
.....
.....

(ii) The number of customers who bought all these three types of items is 12. The number of customers who bought both milk powder and chick peas is 15. How many bought only milk powder?

.....
.....
.....

[See page five.]