Subject : MATHEMATICS

Day/Date: FRIDAY, 11 FEBRUARY 2016

Grade: 7 - ....

Name: ……………………….…

GENERAL INTRUCTIONS:

1. **Write your name** in all of the papers you hand in.
2. Answer **all** questions. Use **PENCIL 2B** and shade the answer
3. **Read carefully** the instructions for each section.
4. **You may USE A CALCULATOR.**
5. Write your answers on the space provided in the question paper.

   Marks may be deducted if necessary working is not shown/clear.
6. Do not use correction tape or highlighter in this test.
7. The number of marks is given in brackets [] in each section and/or
   at the end of the question.

8. **DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.**

For Teacher's Use	
Section A	/ 40
Section B	/ 20
Section C	/ 40
TOTAL	/ 100

SECTION A: CONCEPTS [40 MARKS]

I. MULTIPLE CHOICE [1 marks each]

1. In the room, there are 9 boys and 12 girls. The ratio of girls to boys is:

   (A) 9 to 12   (B) 12 to 21   (C) 4 : 3   (D) 21 : 9

2. If a : b = 2 : 3 and b : c = 4 : 3, then the ratio a : b : c is:

   (A) 8 : 12 : 9   (B) 2 : 3 : 8   (C) 2 : 3 : 9   (D) 2 : 3 : 12

3. If $x : y = 1 : 3$, then the value of $(7x+3y) : (2x+y)$ is:

   (A) 14 : 5   (B) 15 : 5   (C) 16 : 5   (D) 17 : 5

4. If 2 : 9= x : 18, what is the value of x?

   (A) 2   (B) 3   (C) 4   (D) 6

5. What is the value of m in $\frac{4}{m-8} = \frac{8}{2}$?

   (A) 10   (B) 6   (C) 2   (D) 9

6. In a college, the ratio of the number of boys to girls is 8 : 5.
   If there are 200 girls, the total number of students in the college is:

   (A) 420   (B) 520   (C) 620   (D) 720

7. A man left a legacy of $9450 to be divided among his four daughters, Alice, Beatrice, Candice and Denice, in the ratio 5 : 6 : 7 : 9 respectively. How much did Candice receive?

   (A) $1750   (B) $2100   (C) $2450   (D) $3150

8. In a mixture 60 litres, the ratio of milk and water 2 : 1. How much water must be added to the mixture to make the ratio of milk to water become 1 : 2?

   (A) 20 litres   (B) 30 litres   (C) 50 litres   (D) 60 litres

9. What is the ratio of 4km to 600 meters in lowest terms?

   (A) 1 : 150   (B) 20 : 3   (C) 3 : 20   (D) 2 : 3

10. The scale of a building plan is 1 cm to 50 cm. Find the actual length of one of the bedroom if it is represented by a length of 9.2 cm.

    (A) 46 m   (B) 460 cm   (C) 46 cm   (D) 460 m

11. A man works for 6 days and is paid $153. How much would he be paid for working 9 days at the same rate?

   (A) $102　　　　　　　(B) $229.50　　　　　(C) $255　　　　　　(D) $250

12. A cyclist was travelling at 20 km/h for 3 hours for the first part of the journey and at 30 km/h for 5 hours for the remaining part. What was the average speed of the cyclist?

   (A) 26.25 km/h　　　　(B) 25 km/h　　　　　(C) 27 km/h　　　　　(D) 25.26 km/h

13. A car is travelling at a speed of 25 metres per second. Express its speed in kilometres per hour.

   (A) 90 km/h　　　　　(B) 9 km/h　　　　　　(C) 900 km/h　　　　　(D) 0.9 km/h

14. F varies directly as the square of the speed, v. When $v = 40$, $F = 25$.

   Which of the following is the equation that relates F and v ?

   (A) $F = 64v^2$　　　　(B) $F = \frac{1}{64}v^2$　　　(C) $F = \frac{1}{32}v$　　　(D) $F = 32v$

15. The wavelength, w, of a radio signal is inversely proportional to its frequency, f.

   When $f = 200$, $w = 1500$. What is the value of f when $w = 600$?

   (A) 500　　　　　　　(B) 50　　　　　　　　(C) 600　　　　　　　(D) 60

16. If it takes 3 days for 10 workers to finish building one house, how many days will it take 15 workers to finish building 4 houses?

   (A) 6　　　　　　　　(B) 10　　　　　　　　(C) 8　　　　　　　　(D) 12

17. What is $\dfrac{4}{5}$ written as a percent?

   (A) 20 %　　　　　　(B) 45 %　　　　　　　(C) 40 %　　　　　　(D) 80 %

18. If 10% of a number is 7, what is 80% of the number?

   (A) 70　　　　　　　(B) 56　　　　　　　　(C) 5600　　　　　　(D) 0.7

19. Three candidates contested an election and received 1136, 7636 and 11628 votes respectively. What percentage of the total votes did the winning candidate get?

   (A) 55%　　　　　　(B) 56%　　　　　　　(C) 57%　　　　　　(D) 58%

20. The population of a town increased from 1,750,000 to 2,625,000 in a decade. The average percent increase of population per year is:

   (A) 4.37%　　　　　(B) 5%　　　　　　　　(C) 6%　　　　　　　(D) 8.75%

21. Chris saves $3500 this year. This is 40% more than he saved last year. Calculate how much he saved last year?

    (A) $4900   **(B)** $1400   **(C)** $2100   **(D)** $2500

22. A baby was born with a mass of 3.6 kg. After 3 months, this mass had increased to 6 kg.
Calculate the percentage increase in the mass of the baby.

    (A) 37.5%   **(B)** 60%   **(C)** $66\frac{2}{3}$%   **(D)** $166\frac{2}{3}$%

23. A fruit seller had some apples. He sells 40% apples and still has 420 apples.
How many apples did the fruit seller have originally?

    (A) 588   **(B)** 600   **(C)** 672   **(D)** 700

24. In a test Ahmed answered 92% of the questions correctly.
If he answered 23 questions correctly, how many questions did he answered wrongly?

    (A) 2   **(B)** 3   **(C)** 25   **(D)** 21

25. George bought a car at $5000 and sold it at $5500. What profit, in percent, did he make?

    (A) 500%   **(B)** 10%   **(C)** 5%   **(D)** 5000%

26. A sofa is purchased at $5000 and sold at $4000, find the percentage loss.

    (A) 10%   **(B)** 20%   **(C)** 25%   **(D)** 28%

27. If the manufacturer gains 10 %, the wholesale dealer 15 % and the retailer 25 %, then find the cost of production of a table if the retail price was $ 1265.

    (A) $750   **(B)** $800   **(C)** $850   **(D)** $950

28. Mark pays $159.10 for a mountain bike on sale. The original price had been reduced by 14%.
Calculate the original price of the bike.

    (A) $185   **(B)** $136.83   **(C)** $181.37   **(D)** $140

29. The original price of a toy was $15. If the price is reduced by 20%, what is the new price of the toy?

    (A) $12   **(B)** $17   **(C)** $5   **(D)** $14.80

30. Each year a company organizes a concert. In a concert held recently, there were 2100 adult tickets sold.
The number of student tickets sold was 400 more than the number of adult tickets sold.
Each adult ticket costs $26 while each student ticket costs $14.
If the company has to pay 8% sales tax on all the tickets sold, how much sales tax must be paid?

    (A) $7618   **(B)** $7186   **(C)** $7816   **(D)** $7168

31. A worker is paid a rate of $50 per weekday and $75 per day on weekends.
What is his total pay for working 10 weekdays and 4 days on the weekends?

(A) $950   (B) $800   (C) $1000   (D) $750

32. A salesman sold two cars priced at $40000 and $65000. If he received commissions of 5% and 7% respectively, find the total amount of commissions on the two cars.

(A) $6650   (B) $5660   (C) $6550   (D) $6560

33. A television set on sale was marked $1600. A 15% discount was given on the marked price of the set.
If the purchase is subject to 7% GST, how much will Ramon pay for the said television set?

(A) $1455.20   (B) $1264.80   (C) $1544.20   (D) $1452.80

34. The price of a T-shirt was $20. It was first increased by 20%.
They did not sell well the shop owner decreased the price by 20%. What is the new price of the T-shirt?

(A) $20   (B) $22   (C) $21   (D) $19.20

35. Celia invests $800 for 5 months at 3% simple interest per year. Calculate the interest she receives.

(A) $24   (B) $120   (C) $20   (D) $10

36. Alberto invested his $9000 for 2 years and had a final amount of $9900 in the end.
At what rate was the amount invested?

(A) 5%   (B) 10%   (C) 9%   (D) 6%

37. Marlissa buys a laptop on hire purchase which requires her to pay a downpayment of 20% of its cash price.
If the pays $240 as downpayment, what is the cash price of the laptop?

(A) $1200   (B) $1000   (C) $3000   (D) $800

38. Fatima buys a bike priced at $120. She pays 60% of the price in cash and then pays $10 per month for 6 months. How much does Fatima pay altogether?

(A) 192   (B) 120   (C) $108   (D) $132

39. Which fraction is equivalent to 16%?

(A) $\frac{16}{25}$ (B) $\frac{4}{25}$ (C) $\frac{25}{16}$ (D) $\frac{16}{1}$

40. Which of the following is the greatest?

(A) 90% of 10   (B) 6% of 1000   (C) 5% of 1400   (D) 3% of 2500

SECTION B: CALCULATION [20 MARKS]

Complete the following tables. Working is not necessary.

1. Fraction – Percent – Decimal

Fraction	Percent	Decimal
	0.05	5%
150 %		
		$\frac{1}{4}$

2. Profit-Loss

Cost Price	Percentage of Loss/Profit	Loss/Profit	Selling Price
$2500		$400 profit	
		$180 loss	$1020
	25% Profit		$750

3. Commission

Total Sales	Rate of Commission	Amount of Commission
$80 000	12%	
	8%	$10 000
$45 600		$1140

4. Simple Interest

Principal	Rate of Simple Interest	Time	Interest	Total Amount
$5000	6%	3 years		
$8400	3%		$147	
		5 years	$80	$880

SECTION C: WORD PROBLEMS   [40 MARKS]

Read each problem below and solve on the space provided.
Show *ALL* working as clearly and neatly as possible.
Marks may be deducted if necessary working is not shown.

1. A man spends 10% of his monthly income on rent, 15% on food, 12% on clothes, 8% on income tax, 21% on other expenses and saves the rest. Given that he saves $1 292 a month, find his monthly income. [3]

2. Peter leaves his home at 06 40 and travels in his car at an average speed of 64 km per hour to his destination 240 km away.
      (i) At what time does he arrive at his destination? [1]
      (ii) On the return journey he leaves at 14 37 and reaches home at 7:25 pm.
           Calculate for the return journey the time taken and the average speed. [3]

3. A door-to-door salesman of electrical goods is employed with a guaranteed salary of $960 per month.
   A bonus of 12% of sales is also paid if sales for the month exceed $5000.
   He will also get an additional bonus of 5% for any sales above $15 000.

   Find the income received in a month when $20 455 worth of goods is sold.   [4]

4. Kalig invested $10 800 and $15 000 into two banks that earn 5% and 6% respectively.
       (a)   Find the total interests of his two investments after 3 years.   [3]
       (b)   Compute for his final amount.   [1]

5. Ben had an income of $100 000 in 2014.

He is married, has 4 children one of whom has disability, has a wife who doesn't work and a parent to support. He contributed a total of $15000 worth of provident funds and donated $5000 to an orphanage. Using the amount per relief provided below:

Personal relief: $4000   Child relief: $3000
Wife relief: $5000   Child relief with disability: $3500
Parent relief: $3000

(a) Calculate his total reliefs.   [2]

(b) His income tax is computed as described below.

no tax on the first $10 000 of his taxable income.

10% tax on the next $10 000 of his taxable income

25% tax on the rest of his taxable income.

Calculate the total income that he has to pay for the year 2014.   [5]

6. The list price of a car is $98 800.

(a) If a discount of 12% is given for cash payment, find the cash price of the car. [1]

(b) Jack chooses to buy by hire purchase over 12 months.
He is given a discount of 10%. He must pay a 30% downpayment.
The balance will be charged with 5% simple interest.
Calculate his monthly instalment. [5]

7. A travelling salesman receives a basic salary of $800 a month and a commission equal to 4% of the value of goods sold plus a car allowance of 60¢ per km.

(a) Find his income for a particular month when he sells goods worth $13 500 and travels 800 km. [2]

(b) The next month, he travels 996 km and receives a total income of $1970.
Find the amount of sales that he made. [3]

8. A manufacturer knows that 6% of the light bulbs he makes are defective.

   Find the number of bulbs he must produce in order to obtain 611 light bulbs which are not

   defective.

   The manufacturing cost for the light bulbs is $586.56. If he sells the non-defective light bulbs at a

   profit of 25%, find the selling price of each light bulb.   [5]

9. The plane took 3 hours and 15 minutes to travel a distance of 2350 km.

   Calculate the average speed of the plane in metres per second.   [2]