

2018 - 2019

# S.3 Mathematics Uniform Test 3 Chapter 3: Percentages (II)

Question-Answer Book

Date: 25 - 10 - 2018

**Duration: 40 mins** 

This paper must be answered in English

#### **Instructions:**

- 1. Write your name, class and class number in the spaces provided on this cover.
- 2. Answer ALL questions in this paper. Write your answers in the spaces provided in this Question-Answer Book.
- 3. Write your answers with black or blue ball-pens, and draw graphs or figures with HB pencils.
- 4. Unless otherwise specified, all working must be clearly shown.
- 5. Unless otherwise specified, numerical answers should be either exact or correct to 3 significant figures.
- 6. The diagrams in this paper are not necessarily drawn to scale.

## Section A: Multiple Choice Questions (12 marks)

Fill in the best answer in each of the following questions.

1.	A number increases by 10% and then decreases by 10%. What is the percentage change?					
	A.	-1%	В.	0%		
	C.	1%	D.	10%		
2	773			ф11 205 d.; — В. 1 d d. С		
2.		price of gold was increased from \$9 900 last				
		-15%	В.	15%		
	C.	1 – 15%	D.	1 + 15%		
3.	There were 74 000 books in a public library in the beginning. The number of books was increased by					
	8% per year in the first 3 years. It was increased by 5% per year afterwards. Find the change of the					
	nun	nber of books in the library in the first 5 years	S.			
	A.	28 774	В.	29 202		
	C.	36 160	D.	102 774		
4.	A sı	um of money is deposited in a bank at an inte	rest r	ate of 4.5% p.a. If the simple interest obtained 6		
		rs later is \$8100, find the principal.				
	A.	\$25 000	В.	\$27 000		
	C.	\$30,000	D.	\$33 000		
	0,	*	2.			
5.	Trac	Tracy deposits \$8 000 in a bank at an interest rate of 4% p.a. If the interest is compounded monthly,				
	find	the amount she receives after half a year.				
	A.	\$161.3	В.	\$325.4		
	C.	\$8 161.3	D.	\$8 325.4		
6.	A sum of money is deposited in a bank at an interest rate of 5% p.a. compounded yearly. If the interest					
	received for the first year is \$500, then the interest received for the second year is					
	A.	\$500	В.	\$525		
	C.	\$550	D.	\$1050		

#### Section B: Conventional Questions (26 marks)

Show both your steps and answers clearly in the spaces provided.

7. A restaurant served 150 customers yesterday. Find the percentage change in the number of customers if the restaurant serves 120 customers today. (2 marks)

8. A metal rod is heated up and its length increases by 5% to 42 cm. Find its original length. (3 marks)

9. Last month, there were 150 employees in a company and 70% of them were male. This month, the number of male employees decreases by 20% and the number of female employees increases by 60%. Find the total number of employees in this month. (4 marks)

10.	There are 8 000 citizens in a city now. If the population increases at a constant rate of 5% per year, find				
	the population 6 years later. (Give your answer correct to the nearest hundred.)	(3 marks)			
11.	A photocopier costs \$8 250 now. If its value decreases by 8% per quarter,				
	(a) what is the decay factor?	(1 mark)			
	(b) find its value 3 years later. (Give your answer correct to the nearest \$100.)	(3 marks)			
12.	Anthony borrows \$7 000 from a bank at a simple interest rate a bank for 4 years. He will perf \$11,200. What is the appropriate rate?				
	of \$11 200. What is the annual interest rate?	(4 marks)			

- 13. Billy wants to deposit \$360 000 into a bank for 2 years. The bank offers 2 plans to Billy:
  - Plan A: The money is deposited at a simple interest rate of 8.4% p.a.

Plan B: The money is deposited at 8% p.a. compounded half-yearly.

(a) Find the interest that he will get if he choose

(5 marks)

- (i) Plan A
- (ii) Plan B,
- (b) Which plan should he choose in order to earn more interest? Explain your answer. (1 mark) (Give your answers correct to the nearest \$ if necessary.)

### Section C: Bonus Question (Optional)

Show both your steps and answers clearly in the spaces provided.

14. Mr. Wong made a loan of \$200 000 from a bank at the first day of a month. At the end of each month, the bank would impose an interest rate of 3% p.a. on the remaining amount and compounded monthly. He returned \$50 000 in the first 2 months. How much should Mr. Wong pay if he decided to return the remaining amount to the bank in the 3<sup>rd</sup> month? (3 marks)