Sydney Technical High School

Name: _____

Teacher: _____

Year 7

Mathematics

Half Yearly Exam

May 2017

Time allowed: 70 minutes

General Instructions:

- Marks for each question are indicated on the question.
- Calculators are not to be used
- All necessary working should be shown
- Full marks may not be awarded for careless work or illegible writing
- Write using black or blue pen
- Write your answers in the space provided

Multiple Choice	/15
Question 1	/12
Question 2	/12
Question 3	/12
Question 4	/12
Question 5	/12
TOTAL	/75

SYDNEY TECHNICAL HIGH SCHOOL

MULTIPLE CHOICE ANSWER SHEET

Name : .....

Teacher: .....

Course: **Year 7 Mathematics**

Completely fill the response oval representing the most correct answer.

1. A ○ B ○ C ○ D ○
2. A ○ B ○ C ○ D ○
3. A ○ B ○ C ○ D ○
4. A ○ B ○ C ○ D ○
5. A ○ B ○ C ○ D ○
6. A ○ B ○ C ○ D ○
7. A ○ B ○ C ○ D ○
8. A ○ B ○ C ○ D ○
9. A ○ B ○ C ○ D ○
10. A ○ B ○ C ○ D ○
11. A ○ B ○ C ○ D ○
12. A ○ B ○ C ○ D ○
13. A ○ B ○ C ○ D ○
14. A ○ B ○ C ○ D ○
15. A ○ B ○ C ○ D ○

Multiple Choice – Answer on the Multiple Choice answer sheet provided.

1. Write in numerals three hundred and six thousand.

   A. 3 006 B. 360 000 C. 306 000 D. 3 006 000

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2. 848 + 98 rounded to the nearest 10 is

   A. 40 B. 50 C. 940 D. 950

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3. Which of the following statements is false?

   A. $4+7=7+4$ B. $4-7=7-4$ C. $4 \times 7 = 7 \times 4$ D. $4 \div 7 = \frac{4}{7}$

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4. The coefficient of m in $16mn + 21 - 5m$ is

   A. 16 B. 21 C. 5 D. -5

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5. Which of these is equal to one million?

   A. 10^7 B. 10^8 C. 10^6 D. 10^9

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6. $a^4 =$

   A. $4a$ B. $a+4$ C. $a+a+a+a$ D. $a \times a \times a \times a$

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7. In Roman Numerals, I=1, V=5, X=10, L=50, C=100. What is the Hindu Arabic numeral for CCCXCVII?

   A. 397 B. 417 C. 382 D. 352

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8. $5^8 \times 5^6 \div 5^{13} =$

   A. 1 B. 0 C. 5 D. 5^{27}

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9. The result of subtracting x from 4 can be expressed as

   A. $x-4$ B. $4-x$ C. $\frac{4}{x}$ D. $-4x$

10. Which of these statements is true?

A. $4^2 > 18$ B. $12 \div 6 < 2$ C. $4 \times 3 \neq 7$ D. $18 - 7 \leq 5$

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11. The width of a rectangle is x metres. Its length is 4 metres longer. An expression for its perimeter is

A. $x + 4$ B. $2x + 4$ C. $4x + 8$ D. $4x$

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12. 163 students and 6 teachers are going on an excursion by bus. Each bus is able to carry 43 people. How many buses are needed for the excursion?

A. 3 B. 4 C. 5 D. 6

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13. $20 - (15 + [40 \div 8]) =$

A. 10 B. 40 C. $\frac{45}{8}$ D. 0

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14. $(5 + 7 \times 2)^2 =$

A. 361 B. 576 C. 201 D. 33

---

15. $\frac{24x^2y}{18x} =$

A. $\frac{4x}{3}$ B. $\frac{4xy}{3}$ C. $\frac{4y}{3x}$ D. $\frac{4x^3y}{3}$

Section 2 – Show all necessary working

Question 1

a) $235 +$
67
8924

b) $357 \times$
62

c) Calculate $5764 \div 4$

d) $3406 -$
821

e) $35\overline{)67215}$

f) Triple the sum of 28 and 35

Question 2

a) Give the definition of a prime number.

b) What is the second odd number after 998?

c) Find the next palindromic number after 13331.

d) What is the divisibility test to determine if a number is divisible by 3?

e) What is the value of the 4 in the numeral 42 658?

f) Write 24 352 using expanded notation in index form.

g) True or false? $3 + 4^2 \geq 25 - 6$

h) Evaluate
i) $25 + (17 - 5) \times 3$

ii) $100 \div 5^2 + 45$

i) Insert grouping symbols to make the following true.

$$12 - 3 \times 2 + 5 = 63$$

j) Write $5 \times 10^4 + 8 \times 10^3 + 6 \times 10^2 + 2$ as a basic numeral.

k) List the first 4 Triangular numbers.

Question 3

a) i) List the factors of 42.

ii) List the factors of 56.

iii) What is the Highest Common Factor of 42 and 56?

b) i) Write the first 4 multiples of 4.

ii) Write the first 4 multiples of 6.

iii) What is the Lowest Common Multiple of 4 and 6?

c) Complete a factor tree for 80.

Question 4

a) Write $4^2 \times 3^4$ in expanded form

b) Calculate 6^3

c) Simplify, giving your answers in index form.

i) $2^5 \times 2^6$

ii) $3^{12} \div 3^4$

iii) $(5^3)^6$

d) Simplify 3×5^2

e) Find

i) $\sqrt{121}$

ii) $\sqrt[3]{27}$

f) If $324 = 2^2 \times 9^2$, find $\sqrt{324}$

g) Express 360 as a product of its prime factors.

Question 5

a) Write the next two numbers in each pattern.

i) 117, 99, 81, ____, ____

ii) 4, 9, 16, ____, ____

b) Write an expression for the following:

i) The sum of m and 5

ii) The difference between 20 and x is divided by 3.

c) Simplify

i) $8mn + 3mn$

ii) $3x + 7y + 5x - 4y$

iii) $4h \times 3hj$

iv) $5 \div (6 + t)$

d) If $x = 3$ and $y = 8$, find

i) $2x + 4$

ii) $\frac{y}{2} - 3$

e) Simplify

i) $4a^2 \times 8ab^2$

ii) $\frac{24p^2q}{36pqr}$