



citycollege

**2016**

**ENTRY**

**TESTS**



# **English Diagnostic Test**

**Duration: 1 hour**

### Section A: Writing [30 Marks]

You are advised to write between 150 to 250 words on one of the following topics on the following page.

1. What is your idea of a wonderful day? Describe some people, places, or objects that you consider to be beautiful.
2. 'We cannot do without education today.' What are your views?
3. What kind of benefits does volunteer work offer students?

### **Sample answer to Essay Question 3**

*Voluntary work offers students many kinds of benefits – short and long term, tangible and intangible. They are crucial to growing students to be people of character, and committed members of society.*

*First, voluntary work builds students' ability to see beyond materialistic needs. Many young students are apathetic because they do not have the chance to do more about life, especially when everything is presented on a platter already. Voluntary work like the Boys Brigade's annual campaigns to offer manual services as simple as washing someone's car to hauling newspapers for an old person, give students a reality jolt and a deeper appreciation of their comfortable situation.*

*Second, voluntary work develops altruism in young people. In most cases, the volunteers give out of their own pocket, and do not ask for anything in return. Students who are part of such voluntary work often find their money and time 'well spent' because it was not on a shopping or material goods but on real need. There are many such organisations where young students can volunteer their time and money.*

*Third, voluntary work unites students from diverse backgrounds. A good example is the Youth Olympic Games, where thousands of students were asked to help out at different segments of the event. Those who participated in the games as athletes, stood along their peers who cheered, carried, served, or cleaned. The success of the event reflected how the volunteers were of one heart, working towards a single goal of making the Games an internationally recognised one for Singapore.*

*Fourth, voluntary work inspires students to think of the future. Voluntary work is important, because someday, every student would require personal help in future. By then, what kind of help would be available and why? In Singapore alone, there are many diverse needs. In fact, it is possible for the world to be a better place, if every person has access to free assistance.*

*In conclusion, the benefits of voluntary work are far-reaching. To be able to start young as a student is worthwhile, because of the positive change in mindset, character growth, and a newfound passion for societal contribution. Voluntary work for students is never dull but rewarding.*

## Section B: Reading [10 Marks]

*This article below is by a writer who wrote about her family relationships. Read it carefully and answer Questions 1-6 on the next page.*

- 1 Within each person is a desire to influence the world. This desire may lead to good or bad results. How a person is nurtured in his thinking during his growing up years is extremely important. The adults in his life, including parents and teachers, need to be aware that they carry great responsibility in the way they model life and thought for the person.
- 2 Parents are the most important role models in person's life. Traditionally, the father is the authority figure and the mother, the nurturing one. Consider what happens if the father is overbearing- will not the child grow up to associate authority with control, instead of protection and healthy discipline? Control, when done improperly, causes fear in a child, because he dares not explore his curiosity without some form of reproach. For example, if I should have a father who is too strict and demands to know the reason for everything that I do, to the extent of having to ask permission to wear certain clothing, would I not be fearful and mistrustful of other forms of authority in the long run? For a mother, her challenge is not to smother her child with excessive love because the father has been too harsh. She must not make the child be over-reliant to run to her for everything. Instead, she must grow his independent spirit, by guiding him to make decisions so that he may learn along the way.
- 3 Hitler, the infamous German dictator who massacred six million Jews, was brought up by an overbearing father and a permissive mother. His father, so strict and brutal. He died when Hitler was thirteen, such that Hitler grew up with the wrong ideas of discipline. His mother over-compensated for his father's behaviour, by supporting her son leaving school without proper qualifications. Would they have changed their minds if they knew the results, that he was to grow up as a poor and angry achiever, who tended to blame others, especially the Jews for his life's disappointments? On the other hand, Timothy, a key figure in the early church in the bible, was known to have been brought up well by his mother and grandmother.
- 4 Teachers are the next influential figures after parents. Imagine spending at least six to seven hours a day, equivalent of an adult work day, in a school, where you must be learning, and made to agree with certain principles about life. After ten years, where you would have learnt primary and secondary school skills, would you not by then, carry the thoughts and influences of your teachers? And what if they teach you and model for you certain principles that are contrary to your parents' or the nation's? What would happen to the way you see interaction in the world.
- 5 The tragedy of September 11th 2001, where four passenger planes were hijacked by terrorists of the Al-Qaeda group, can be traced back to the detrimental influence of teachers. The leader of Al-Qaeda, Osama Bin Laden, had been taught by teachers who believed that it was acceptable to use violent means to achieve governance. One of them was instrumental in helping Bin Laden to start up Al-Qaeda, which became a dangerous terrorist group.
- 6 The examples in the passage above are lessons for us to remember that influence can be a double-edged sword for good and bad influences. We must be responsible with our words and how we learn principles in life, because within each of us, is an ability to influence others either way.

1. In the first paragraph, what does 'nurtured in his thinking' tell us about a person in his growing up years?

ANS: A person develops / grows [1] in his thinking in the growing up years.

2. **In your own words**, explain what is the role of the father in paragraph 2.

ANS: He is to be the figure of leadership/ discipline. [either one 1] Authority figure [0]

3. In paragraph 3, why do you think the writer mentions how Hitler was brought up?

ANS: The writer wanted to show how upbringing affects individuals when they grow up [1], so that it would discourage poor upbringing to the readers [1].

4. In paragraph 4, what do teachers do besides teaching the subjects for learning

ANS: They teach / impart certain principles about life. [1]

5. Which two consecutive words tells us that the terrorists have negative teaching from their teachers?

ANS: They are 'detrimental influence'. [1]

6. The structure of the text reflects what is important about family relationships. Complete the flow chart by choosing the ideas from the box to summarise what was explained. Write the correct number, i-vii, next to the appropriate paragraphs below. There are extra ideas you do not need to use.

What happened to the author and her family?

<i>i) growing up years are important</i>	<i>ii) A personality disorder can be nurtured from young and even result in war</i>	<i>iii) childhood memories</i>
<i>iv) Osama bin Ladin had great influence</i>	<i>v) Parents have great influence over a person</i>	<i>vi) Teachers can influence greatly as they spend many hours with the child</i>
<i>vii) Teachers can empower students negatively or positively</i>		

**Example: Paragraph 3:** (iv)

Paragraph 1: ( i )

Paragraph 2: ( v )

Paragraph 4: ( vi )

Paragraph 5: ( vii )

## Grammar editing [10 marks]

Carefully read the text below, consisting of 12 lines, about the aesthetic appeal of Japanese food. The first and last lines are correct. For eight of the lines, there is one grammatical error in each line. There are two more lines with no errors.

If there is NO error in a line, put a tick (✓) in the space provided.

If the line is incorrect, circle the incorrect word and write the correct word in the space provided.

The correct word you provide must not change the original meaning of the sentence.

Examples:

I arrived **to** my destination at 2 PM.

at  
.....

My mother always wears sensible clothes.

.....✓

Fast food features very frequently and commonly in the diets of many teens around the world. As most fast food originated **in** America, it is no **wondering** that there is a marked increase in the consumption of fast food amongst Americans **in** the ages of 18 and 25.

Although it seems **commonsense** that eating too much fast food will **effect** one's health, more studies are still being done to show ill effects of too much fast food. One recent study has discovered that teens who ate at fast food outlets more than twice a week, **gains** an extra ten pounds after 15 years. They are also two times **most** likely to **develops** insulin resisting, which is a risk factor for Type 2 Diabetes.

It is very hard to eat in a healthy way at a fast food joint. This is because low-nutrient food that is high in fats, sugar and calories are still offered.

1. from
2. wonder
3. between
4. commonsensical
5. affect
6. ✓
7. gain
8. more
9. develop
10. ✓

## **Mathematics Diagnostic Test**

**Duration: 1 hour 15 min**

## Sample Paper (with answers)

1. Evaluate  $\{[(-30) + 10] \times (-5)\} - (-20)$ .

[Solution]

$$(-20) \times (-5) + 20 = 100 + 20 = 120$$

2. The number 90 written as the product of its prime factors is  $90 = 2 \times 3^2 \times 5$ .

- (a) Write 198 as a product of its prime factors.  
(b) Find the highest common factor of 90 and 198.  
(c) Find the small integer  $k$ , such that  $198k$  is a perfect square.

[Solution]

- (a)

$$\begin{array}{r|l} 2 & 198 \\ \hline 3 & 99 \\ \hline 3 & 33 \\ \hline & 11 \end{array}$$

$$198 = 2 \times 3^2 \times 11$$

- (b)

$$\begin{aligned} \text{HCF (90 and 198)} &= 2 \times 3^2 \\ &= 18 \end{aligned}$$

- (c)

$$\begin{aligned} \sqrt{198k} &= \sqrt{2 \times 3^2 \times 11 \times k} \\ k &= 2 \times 11 \\ &= 22 \end{aligned}$$

3. Evaluate  $\frac{\sqrt{8 + (-3.1)^2}}{7.02}$  using a calculator, rounding off your answer to 2 decimal places.

*[Solution]*

1.77

4. Arrange the following in descending order (biggest to smallest).

$\sqrt{225}$ ,  $5^2$ ,  $\sqrt[3]{27}$ , 800%

*[Solution]*

$5^2$ ,  $\sqrt{225}$ , 800%,  $\sqrt[3]{27}$

5. A sum of money is divided among Gwen, Clara and Devina. The ratio of the amount of money received by Gwen to the amount received by Clara is 2 : 3 and the ratio of the amount of money received by Clara to the amount received by Devina is 5 : 4. Find the ratio of the amount of money received by Gwen to the amount received by Devina?

*[Solution]*

Gwen : Clara

2 : 3

10 : 15

Clara : Devina

5 : 4

15 : 12

Gwen : Devina

5 : 6

6. A rescue plane 85 m above sea level spots a sunken ship 18 m below sea level. How far apart are the rescue plane and the sunken ship?

*[Solution]*

$$85 - (-18) = 103 \text{ m}$$

7. A plan of a house is drawn to the scale 1:20. The width of the house is 8m. How wide is the plan of the house?

*[Solution]*

$$1\text{cm} : 20\text{cm}$$

$$40\text{cm} : 800 \text{ cm (or 8 metres)}$$

Answer : 40 cm

8. Betty made a business trip to New York. The exchange rate between the Singapore dollar (S\$) and the US dollar (USD) then was S\$1.32 = US\$1. Betty exchanged S\$2500 for US dollars. Calculate the amount of US\$ she had received, giving your answer correct to the nearest cent.

*[Solution]*

$$\begin{aligned} \$2500 &= \frac{2500}{1.32} \\ &= \text{US\$}1893.94 \end{aligned}$$

9. A man borrows \$8,000 from a bank and pays simple interest at 5% per year.  
(a) How much simple interest will he have to pay after 4 years?  
(b) After how many years will the simple interest be \$2,800?

*[Solution]*

(a)

$$\begin{aligned} \text{Interest} &= \frac{\$8000 \times 5 \times 4}{100} \\ &= \$1600 \end{aligned}$$

(b)

$$\begin{aligned} \text{No. of years} &= \$2800 \times 100 \div \$8000 \div 5 \\ &= 7 \end{aligned}$$

10. Mr and Mrs Manmit went on a holiday with their two children to Melbourne. They spent 6 hours 50 minutes on the flight from Singapore to Melbourne.
- (a) The plane left Singapore at 01 00. When the flight landed, it was 09 50 in Melbourne. How many hours is Melbourne time ahead of Singapore time?
- (b) The return flight was 20 minutes shorter. It was 15 00 when they left Melbourne. What time would they arrive in Singapore?

[Solution]

(a) *Time of Arrival (Singapore Time)*

$$= 0100 + 0650$$

$$= 0750 \text{ h}$$

$$\text{Time diff.} = 0950 \text{ h} - 0750 \text{ h}$$

$$= 2 \text{ h}$$

(b) *Return flight time = 6 hr 30 min.*

$$\text{Singapore time when departed} = 1500 - 0200$$

$$= 1300 \text{ h}$$

$$\text{Time of arrival} = 1500 + 0630$$

$$= 1930 \text{ h}$$

11. (a) Simplify  $16h + 8h^2 - 21h + 9 - 3h^2$ .
- (b) Simplify  $23mn^2 - 4mn \times 2n$ .

[Solution]

$$(a) \quad 16h + 8h^2 - 21h + 9 - 3h^2 = 8h^2 - 3h^2 + 16h - 21h + 9$$

$$= 5h^2 - 5h + 9$$

$$(b) \quad 23mn^2 - 4mn \times 2n = 23mn^2 - 8mn^2$$

$$= 15mn^2$$

12. It is given that  $h = \frac{3u^2}{8g}$ .

- (a) Calculate the value of  $h$  when  $u = 32$  and  $g = 7.9$ .  
(b) Express  $u$  in terms of  $h$  and  $g$ .

[Solution]

(a)

$$\begin{aligned}h &= \frac{3 \times 32^2}{8 \times 7.9} \\ &= 48.6 \text{ (3s.f.)}\end{aligned}$$

(b)

$$\begin{aligned}h &= \frac{3u^2}{8g} \\ 8gh &= 3u^2 \\ u^2 &= \frac{8gh}{3} \\ u &= \pm \sqrt{\frac{8gh}{3}}\end{aligned}$$

13. Express  $\frac{4a-6}{5} - 1$  as a single fraction.

[Solution]

$$\begin{aligned}\frac{4a-6}{5} - 1 &= \frac{4a-6}{5} - \frac{5}{5} \\ &= \frac{4a-6-5}{5} \\ &= \frac{4a-11}{5}\end{aligned}$$

14. Solve the equation  $4(3x - 2) = 5 - 2(6 - x)$ .

*[Solution]*

$$4(3x - 2) = 5 - 2(6 - x)$$

$$12x - 8 = 5 - 12 + 2x$$

$$12x - 2x = 1$$

$$x = 0.1$$

15. Solve the simultaneous equations.

$$2x + y = 5$$

$$x + 2y = 7$$

*[Solution]*

*By elimination,*

$$2x - 2x + y - 4y = 5 - 14$$

$$\therefore y = 3, x = 1$$

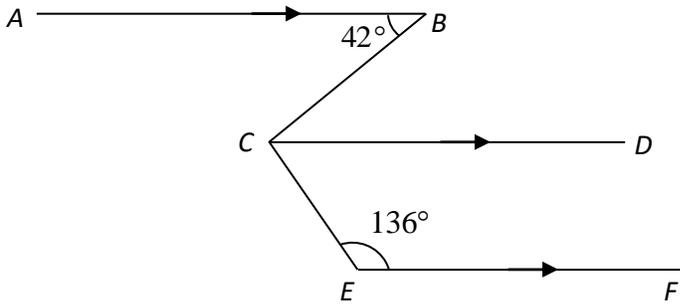
*By substitution,*

$$2(7 - 2y) + y = 5$$

$$y = 3$$

$$\therefore y = 3, x = 1$$

16. In the diagram,  $AB \parallel CD \parallel EF$ ,  $\angle ABC = 42^\circ$  and  $\angle CEF = 136^\circ$ .



By stating your reasons clearly, find

- (a)  $\angle BCD$ .
- (b)  $\angle DCE$ .
- (c) the reflex  $\angle BCE$ .

[Solution]

(a)  $\angle BCD = 42^\circ$  (alternate angle)

(b)

$$\begin{aligned}\angle DCE &= 180^\circ - 136^\circ \\ &= 44^\circ \text{ (int. } \angle)\end{aligned}$$

(c)

$$\begin{aligned}\text{Reflex } \angle BCE &= 360^\circ - 42^\circ - 44^\circ \text{ (}\angle\text{s at a point)} \\ &= 274^\circ\end{aligned}$$