



**MALAYSIAN COMPUTATIONAL LINGUISTICS
OLYMPIAD 2022**

Date: 26 February 2022

Time: 3.00pm to 6.00pm (3 hours)

This paper contains five (5) problems in English (pages 2-7) and Bahasa Melayu (pages 8-14). You may write your solutions in either language.

Please follow the instructions given in the briefing.

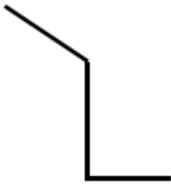
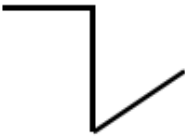
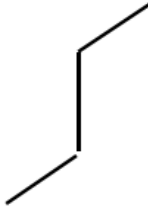
GOOD LUCK

PROBLEM 1

Author: Alexander Piperski

In the history book *Chronica Majora*, written in the 13th century by the English monk Matthew Paris, there is mentioned a system of writing numbers less than 100. The system was brought to England from Greece.

Here is an example of how to write four numbers in the writing system:

81	72	19	38
			

Assignment 1. What are the numbers represented by these symbols? Explain your answers.

a) 

b) 

c) 

Assignment 2. Write the following numbers in the writing system:

- a) 18
- b) 79
- c) 46
- d) 60
- e) 0.

PROBLEM 2

Author: Debbie Chow

A *rebus* (pronunciation: ree-buhs) is a combination of pictures or symbols representing a certain meaning when read together. These are some rebuses and the English sentences they represent:

The rebus consists of two rows of symbols. The top row contains a dog's head, three dots, a mother figure, a dog's head, and a bowl. The bottom row contains a bowl and a mother figure.	The dog ate the food so mother scolded the dog.
The rebus consists of two rows. The top row contains a hammer. The bottom row contains a cross symbol.	Father is working.
The rebus consists of two rows. The top row contains a mother figure, a cross, and two crossed swords. The bottom row contains a mother figure and a downward arrow.	Mother told the children not to fight.
The rebus consists of two rows. The top row contains a mother figure, a cross, and three dots. The bottom row contains a downward arrow.	The children said they did not want food.
The rebus consists of two rows. The top row contains a father figure and an apple. The bottom row contains a cross symbol.	Father is eating an apple.
The rebus consists of two rows. The top row contains a dog's head, a couch, a cross, and a couch. The bottom row contains a downward arrow.	The children hid above and below the couch.

Assignment 1. Express the following sentences in rebuses based on the given data set:

- The dog hid below the couch.
- Father scolded the children so the children hid.
- Mother is eating.
- Father told the dog not to eat.
- The children did not want food so the dog ate the food.

PROBLEM 3

Author: Debbie Chow

Gyenllof is a constructed language (a made-up language). It is a 'pro-drop' language, meaning that the pronouns can be removed and the sentence remains grammatical. *Gyenllof* was constructed by the author during a workshop by Francis Nolan, Professor of Phonetics at the University of Cambridge, who designed Parseltongue for the Harry Potter movie series.

These are some *Gyenllof* sentences with their English translations:

Yen kitsalli antwerp.	I like fruit.
Yono mitsallo eggo-eggo.	He eats eggs.
Krapitalla pianno tal violinne.	She plays piano and violin.
Kitsallo antwerp-antwerp.	He likes fruits.
Mitsallon jungga tal shtorka abishtek.	He ate an orange and a strawberry in the morning.
Gorlupa-gorlupa kitsalle grishtek.	Rabbits like broccoli.
Loftikulli antwerp-antwerp.	I buy fruits.
Yana mitsallan gorlupa-gorlupa.	She ate rabbits.
Yono krapitallo violinne.	He is playing violin.
Krapitallan pianno cuando litzek.	She played the piano when she was small.
Mitsalli eggo-eggo tal jungga abishtek.	I am eating eggs and an orange this morning.
Hallamo shkola abishtek.	He is going to school this morning.
Krapitalla tenisye.	She is playing tennis.

Assignment 1. Translate the following to *Gyenllof*. Explain your answers.

- Rabbits like fruit.
- She eats oranges and broccoli and strawberries.
- I play the violin.
- He liked eggs.

Assignment 2. Translate the following to English. Explain your answers.

- Loftikullon violinne abishtek.
- Mitsalla shtorka-shtorka tal eggo.
- Hallami shkola abishtek.
- Yen tal yono kitsallu gorlupa-gorlupa.

For both assignments, if there is more than one possible answer, state all of them.

PROBLEM 4

Author: Yeoh Zi Song

These are some phrases in Language IV and their English translations. The stress of each phrase is marked with an accent (´). There is one stress in each phrase.

Language IV	English	Language IV	English
á:ntaziga	women	s'aidá:ni	he salted
aisigizerjéni	he will mend	seutigení:	his nut
b'átawa	boy	tegewéu	your gown
dílí	head	toköwóni	his cloud
dogbó	night	utawá	that
dogdí	listen	zuezé	table
emendé	witch		

Assignment 1. Mark the stresses in the following ten phrases in Language IV (one stress per phrase). Explain your answer.

Language IV	English	Language IV	English
azigani	his girl	mamasala	old woman
bisini:	he was	omomo	one
degumu	poles for drying fish	su:lei	ill, sick
k'ololo	in the mitten	sakindezemu	we will clap
lifakta	mud	su:si:ni	he extinguishes

Note:

The symbol : represents a long vowel.

The symbol ' represents a glottal stop.

ŋ sounds like “ng”.

ö sounds like “ir” in “bird”.

Language Information. Language IV is a member of the Tungusic family. It is spoken by approximately 200 people in the Russian Far East.

PROBLEM 5

Author: Yeoh Zi Song

These are 17 phrases in Language V and their English translations, in the **wrong** order:

	Language V		English
1	awī'i' manj' ηweanji'mi da'ni awī'i' yariŋi'rini	A	(be) inside
2	diŋi' i'nimi nikwi'ro'ma'na'	B	(become) proud
3	ema' manj'	C	(cutting edge of) knife
4	i'nimi	D	big
5	i'nimi imo'narini	E	concealing ulterior motives
6	ino'ki'	F	delicious
7	ino'ki' xwe'i'	G	expensive
8	kira' manj'	H	half moon
9	kira'	I	humble
10	manj' na'	J	knife
11	nigwi' omiŋi'	K	mother
12	nigwi' xwe' roni	L	mother's older sister
13	o'i'pai xwiyi'a'	M	paid job
14	oni'	N	rumour
15	xwe'	O	small
16	xwe' imo'narini	P	talk secretly
17	xwiyi'a' i'nimi rinariŋi	Q	teeth

Assignment 1. Match each phrase with the correct English translation (match each number 1-17 with a letter A-Q; no need to rewrite the phrases).

Assignment 2. Translate the following phrases into English:

- a) ino'ki' oni'
- b) xwiɣi'a'
- c) nigwi'.

Assignment 3. Translate the following phrases into Language V:

- a) moon
- b) mouth
- c) (blade of) knife.

Language Information. Language V is a Papuan language spoken by approximately 2000 people in the Western Pacific islands.

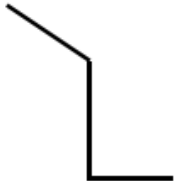
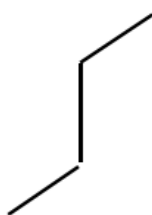
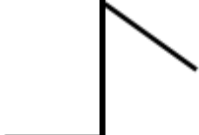
END OF ENGLISH PAPER

MASALAH 1

Pengarang: Alexander Piperski

Dalam buku sejarah bertajuk *Chronica Majora*, yang ditulis pada abad ke-13 oleh seorang rahib Inggeris bernama Matthew Paris, ada disebutkan satu sistem penulisan bagi nombor-nombor yang kurang daripada 100. Sistem penulisan ini telah dibawa ke England dari Greece.

Berikut adalah contoh empat nombor dalam sistem penulisan tersebut:

81	72	19	38
			

Tugasan 1. Apakah nombor yang diwakili oleh simbol-simbol berikut? Huraikan jawapan anda.

a) 

b) 

c) 

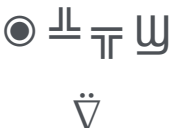
Tugasan 2. Tulis nombor-nombor berikut dalam sistem penulisan tersebut:

- a) 18
- b) 79
- c) 46
- d) 60
- e) 0.

MASALAH 2

Pengarang: Debbie Chow

Rebus (sebutan: ree-buhs) ialah sekumpulan gambar dan simbol yang mewakili suatu maksud yang tertentu apabila dibaca secara menyeluruh. Berikut merupakan beberapa *rebus* dan ayat yang diwakilinya dalam Bahasa Melayu:

	Anjing tersebut telah makan makanan tersebut maka ibu telah memarahi anjing tersebut.
	Ayah sedang bekerja.
	Ibu telah berkata kepada budak-budak tersebut supaya tidak bergaduh.
	Budak-budak tersebut telah berkata mereka tidak mahu makanan.
	Ayah sedang memakan epal.
	Budak-budak tersebut telah menyorok di atas dan di bawah sofa.

Tugasan 1. Ungkapkan ayat-ayat berikut sebagai *rebus* berdasarkan data yang diberi:

- Anjing tersebut telah menyorok di bawah sofa.
- Ayah telah memarahi budak-budak tersebut maka budak-budak tersebut telah menyorok.
- Ibu sedang makan.
- Ayah telah berkata kepada anjing tersebut supaya tidak makan.
- Budak-budak tersebut tidak mahu makanan maka anjing tersebut telah makan makanan tersebut.

MASALAH 3

Pengarang: Debbie Chow

Bahasa *Gyenllof* ialah suatu bahasa rekaan (*constructed language*). Ia merupakan sejenis bahasa '*pro-drop*', yang bermaksud jika kata ganti nama diri dibuang, ayat tersebut masih mempunyai tatabahasa yang betul.

Bahasa *Gyenllof* telah direka oleh pengarang ini ketika menghadiri satu bengkel yang dipimpin oleh Francis Nolan, professor bidang fonetik di Universiti Cambridge, yang telah mereka bahasa *Parseltongue* yang digunakan dalam siri filem *Harry Potter*.

Berikut merupakan beberapa ayat dalam Bahasa *Gyenllof* dan terjemahannya dalam Bahasa Melayu:

Yen kitsalli antwerp.	Saya suka buah ^T .
Yono mitsallo eggo-eggo.	Dia ^L makan telur ^J .
Krapitalla pianno tal violinne.	Dia ^P bermain piano dan violin.
Kitsallo antwerp-antwerp.	Dia ^L suka buah ^J .
Mitsallon jungga tal shtorka abishtek.	Dia telah makan oren ^T dan strawberi ^T pada waktu pagi.
Gorlupa-gorlupa kitsalle grishtek.	Arnab ^J suka brokoli ^T .
Loftikulli antwerp-antwerp.	Saya beli buah ^J .
Yana mitsallan gorlupa-gorlupa.	Dia ^P telah makan arnab ^J .
Yono krapitallo violinne.	Dia ^L sedang bermain violin.
Krapitallan pianno cuando litzek.	Dia ^P telah bermain piano sewaktu dia ^P kecil.
Mitsalli eggo-eggo tal jungga abishtek.	Saya sedang makan telur ^J dan oren ^T pada pagi ini.
Hallamo shkola abishtek.	Dia ^L sedang pergi ke sekolah pada pagi ini.
Krapitalla tenisye.	Dia ^P sedang bermain tenis.

Nota: Superskrip T bermaksud tunggal (*singular*), J bermaksud jamak (*plural*), L bermaksud lelaki, dan P bermaksud perempuan.

Tugasan 1. Terjemahkan yang berikut kepada bahasa *Gyenllof*. Huraikan jawapan anda.

- Arnab^J suka buah^T.
- Dia^P makan oren^J dan brokoli^T dan strawberi^J.
- Saya bermain violin.
- Dia^L telah suka telur^J.

Tugasan 2. Terjemahkan yang berikut kepada bahasa Melayu (anda boleh menggunakan superskrip yang diberi). Huraikan jawapan anda.

- a) Loftikullon violinne abishtek.
- b) Mitsalla shtorka-shtorka tal eggo.
- c) Hallami shkola abishtek.
- d) Yen tal yono kitsallu gorlupa-gorlupa.

Bagi kedua-dua tugas tersebut, jika terdapat lebih daripada satu jawapan yang mungkin, senarai kesemuanya.

MASALAH 4

Pengarang: Yeoh Zi Song

Berikut merupakan beberapa frasa dalam Bahasa IV dan terjemahannya dalam Bahasa Melayu. Tekanan (*stress*) bagi setiap frasa ditandakan dengan simbol *accent* ('). Terdapat satu tekanan pada setiap frasa.

Bahasa IV	Bahasa Melayu	Bahasa IV	Bahasa Melayu
á:ntaziga	wanita-wanita	s'aidá:ni	dia telah garmkan
aisigizenéni	dia akan menampal	seutigení:	kacang dia
b'átawa	budak lelaki itu	tegewéu	gaun awak
dílí	kepala	toköwóni	awan dia
dogbó	malam	utawá	itu
dogdí	dengar	zuezé	meja
emendé	nenek kebayan		

Tugasan 1. Tandakan tekanan pada sepuluh frasa berikut dalam Bahasa IV (satu tekanan pada setiap frasa). Huraikan jawapan anda.

Bahasa IV	Bahasa Melayu	Bahasa IV	Bahasa Melayu
azigani	budak perempuan dia	mamasala	wanita tua
bisini:	dia telah	omomo	seseorang itu
degumu	tiang untuk mengeringkan ikan	su:lei	sakit
k'ololo	dalam sarung tangan	sakindezemu	kami akan tepuk
lifakta	lumpur	su:si:ni	dia memadamkan

Nota:

Simbol : mewakili vokal panjang.

Simbol ' mewakili hentian glotis.

ŋ berbunyi seperti “ng”.

ö berbunyi seperti “ir” dalam perkataan Inggeris “bird”.

Maklumat Bahasa. Bahasa IV tergolong dalam kumpulan Bahasa Tungusic. Ia dituturkan oleh sekitar 200 orang di kawasan Rusia Timur.

MASALAH 5

Pengarang: Yeoh Zi Song

Berikut merupakan 17 frasa dalam Bahasa V dan terjemahannya dalam Bahasa Melayu, mengikut susunan yang **salah**:

	Bahasa V		Bahasa Melayu
1	awi'i' manj' ŋweanji'mi da'ni awi'i' yarinji'rini	A	berada di dalam
2	dinji' i'nimi nikwi'ro'ma'na'	B	menjadi angkuh
3	ema' manj'	C	mata pisau (yang tajam)
4	i'nimi	D	besar
5	i'nimi imo'narini	E	menyorokkan niat sebenar
6	ino'ki'	F	sedap
7	ino'ki' xwe'i'	G	mahal
8	kira' manj'	H	bulan separa
9	kira'	I	merendah diri
10	manj' na'	J	pisau
11	nigwi' ominji'	K	ibu
12	nigwi' xwe' roni	L	kakak kepada ibu
13	o'i'pai xwiyi'a'	M	kerja berbayar
14	oni'	N	khavar angin
15	xwe'	O	kecil
16	xwe' imo'narini	P	bercakap secara rahsia
17	xwiyi'a' i'nimi rinarinji	Q	gigi

Tugasan 1. Padankan setiap frasa dengan terjemahan Bahasa Melayu yang betul (padankan setiap nombor 1-17 dengan salah satu huruf A-Q; anda tidak perlu menulis semula frasa-frasa tersebut).

Tugasan 2. Terjemahkan frasa-frasa berikut ke Bahasa Melayu:

- a) ino'ki' oni'
- b) xwiɣi'a'
- c) nigwi'.

Tugasan 3: Terjemahkan frasa-frasa berikut ke Bahasa V:

- a) bulan
- b) mulut
- c) bilah pisau.

Maklumat Bahasa. Bahasa V tergolong dalam kumpulan bahasa Papua, dan dituturkan oleh sekitar 2000 orang di kepulauan Pasifik Barat.

KERTAS SOALAN BAHASA MELAYU TAMAT