

Panini Linguistics Olympiad 2016

Juniors & Seniors
Round 1, 9th January 2016

Question Booklet

Maximum Marks: 100

Total Time: 4 hours

Instructions:

1. All participants will attempt the same questions in this Question Booklet, regardless of category (Junior or Senior). The cutoff for each category will be determined independent of the other.
2. There are 9 printed pages in this question booklet, including this page. If your booklet has less than 9 printed pages, report to the invigilator immediately.
3. There are 6 problems. The total marks for each problem is indicated in parentheses next to the problem title. Each problem has several sub-parts that must all be answered to receive full credit.
4. Additional information and interesting facts related to the problem are presented in the gray boxes. While the problems can be solved without the help of the additional information, the gray boxes might provide useful hints.
5. The Answer Booklet provided to you has specific space for writing down the objective solutions of each problem. **You MUST write down the precise answers or solutions to the problems in the space provided.** The details and explanations of your answers and the rules of the language should be written in separate sheets.
6. While explaining your answers in separate sheets, you need not rewrite the solutions that you have already provided in the Answer Booklet.
7. Write down your explanations to each problem on a separate sheet or sheets of paper. On each sheet, indicate the **number of the problem**, your **roll number**, and your **name**. Otherwise, your work may be mislaid or misattributed.
8. Do not copy the statements of the problem.
9. **All answers must be well-argued. Even a perfectly correct answer will receive a low score unless accompanied by an explanation.**
10. Each problem has been thoroughly checked by linguists as well as students like you for clarity, accuracy and solvability. Some problems are more difficult than others, but all can be solved using ordinary reasoning and some basic analytical skills. You don't need to have prior knowledge of linguistics or these languages in order to solve them.
11. The question paper has been designed to ensure that very few people will solve all these problems completely in the time allotted. Don't be discouraged if you don't finish everything.
12. The use of calculators, mobile phones and any other electronic devices is strictly prohibited. No books, notebooks or other printed materials can be consulted during the contest.

Good luck!

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Problem 1: Sanskrit Months (15 marks)

The traditional Indian calendars, collectively known as the Hindu calendars, follow a luni-sidereal system of time keeping, where the movement of moon against the fixed background of stars is used as the basis for defining years, months and dates. While the Hindu calendars followed in various regions of India today vary greatly from each other, one thing that is common to all of them is the names of the 12 months. The Sanskrit names for these months, in the temporal order, are:

***Caitra, Vaiśākha, Jyeṣṭha, Āṣāḍha, Śrāvaṇa, Bhādrapada, Āśvina,
Kārtika, Mārgaśīrṣa, Pauṣa, Māgha, Phālguna***

The month of *Caitra* coincides with mid-March or mid-April in most of the modern Hindu calendars. Interestingly, these names have been systematically derived from the names of the *nakṣatra*'s (stars or constellations) that coincide with the moon in that month on the full-moon night (*Pūrṇimā*). There are 27 *nakṣatra*'s corresponding to the 27 days of the lunar cycle.

Given below are the names of 23 of the 27 *nakṣatra*'s, in the right order.

***Aśvinī, Bharanī, Kṛttikā, Rohiṇī, Mṛgaśīrṣa, Ārdrā, Punarvasu, Puṣya,
Aśleṣā, Pūrva Phalguṇī, Uttara Phalguṇī, Hastā, Svāti, Viśākhā,
Anurādhā, Jyeṣṭha, Mūla, Śrāvaṇa, Śraviṣṭhā, Śatabhiṣak,
Pūrva Bhādrapadā, Uttara Bhādrapadā, Revatī***

It is possible to guess the names and positions of the four missing *nakṣatra*'s if you use the following information:

1. All of them end with *ā*.
2. All of them begin with a short vowel. (Not really, but you can assume so.)
3. There is no missing *nakṣatra* between *Jyeṣṭha* and *Mūla*

Assignment 1:

Assuming *Aśvinī* to be the first *nakṣatra* (and *Revatī* the 27th), write down the positional numbers and the names of the 4 missing *nakṣatra*'s in the list.

Assignment 2:

Write down the names of the 12 *nakṣatra*'s with whom the full moon coincides for each of the 12 months.

Assignment 3:

The following 4 *nakṣatra*'s do not lend their names to any month:

Hastā, Punarvasu, Śatabhiṣak, Revatī

However, if one had to derive names of months from them, what would they be? In case it is not possible to predict the month name for some of these *nakṣatra*'s, write "NP" in the Answer Booklet. Explain your reasoning, and then make your best guess for what the month name might be.

1. *h* indicates that the preceding consonant is aspirated (pronounced with a puff of air); *n*, *ś*, *ṭ* denotes *n*, *sh* and *t* in *barn*, *marsh* and *art*, uttered with the tip of the tongue turned back (also colloquially referred to as the hard consonants); *ś* is pronounced as *sh* as in *shoe* and *s* is pronounced as *s* in *sea*; *r* is a vowel; a bar over a letter (e.g., *ā*, *ī*) denotes a long vowel. **2.** *Sanskrit* is the primary sacred language of Hinduism, a philosophical language in Buddhism, Hinduism and Jainism, and a literary language that was in use as a lingua franca in Greater India. It is a standardized dialect of *Old Indo-Aryan*, originating as *Vedic Sanskrit* and tracing its linguistic ancestry back to *Proto-Indo-Iranian* and *Proto-Indo-European*. Today, it is listed as one of the 22 scheduled languages of India. **3.** The lunar cycle is of 27 days and 7¾ hours; the 27 days are covered by the 27 *nakṣatra*'s and the fractional part is compensated by an intercalary 28th *nakṣatra* titled *Abhijit*. *Nakṣatra* computation appears to have been well known at the time of the *Ṛgveda*.

- Monojit Choudhury

Problem 2: Aksara Sunda Kuna (15 marks)

Here is a list of names of Indian cities transcribed in the *Sundanese* script, along with their *English* transliterations given in random order.

	Sundanese	English
A.	ᮘᮧᮒᮧᮒ	
B.	ᮘᮧᮒᮧᮒ	1. Mysuru
C.	ᮘᮧᮒᮧᮒ	2. Jaipur
D.	ᮘᮧᮒᮧᮒ	3. Agartala
E.	ᮘᮧᮒᮧᮒ	4. Chennai
F.	ᮘᮧᮒᮧᮒ	5. Kochi
G.	ᮘᮧᮒᮧᮒ	6. Daman
H.	ᮘᮧᮒᮧᮒ	7. Delhi
I.	ᮘᮧᮒᮧᮒ	8. Shimla
J.	ᮘᮧᮒᮧᮒ	9. Kanpur
		10. Agra

Assignment 1:

Find the correspondences between the names of cities in the *Sundanese* script and *English* script. Explain your answers. Write only the number corresponding to the Roman transliteration next to the letter corresponding to the *Sundanese* transliteration in your Answer Booklet. (For example: K - 11)

Assignment 2:

Here are the names of some more cities in the *Sundanese* script. Which cities are they? If you cannot figure out the name of a city from the given data, write "NP" in your Answer Booklet, and then explain your reasoning.

a) ᮘᮘᮞᮞ

b) ᮞᮞᮞᮞᮞ

c) ᮞᮞᮞᮞᮞᮞᮞ

d) ᮞᮞᮞᮞ

e) ᮞᮞᮞᮞᮞᮞ

Aksara Sunda Kuna is the written script of *Sundanese*, a Malayo-Polynesian language spoken by about 39 million people mainly in Western Java in Indonesia. It is the third most-spoken language in Indonesia. *Sundanese* is closely related to *Madurese* and *Malay*, and more distantly related to *Javanese*.

- Saujas Vaduguru

Problem 3: Luganda (15 marks)

Given below are some words in *Luganda*, along with their *English* translations in random order:

kantu, muti, kagga, nbogo, bulawuzi, kawuzi, nbwa, bulangiti, mugga, bayibuli, kabwa, muti

blanket, tree, dwarf, dog, stream, the Bible, thread, buffalo, river, blouse, puppy, pole

Assignment 1:

Determine the correct correspondences.

(Hint: *muwuzi* → *rope*)

Assignment 2:

Given below are some more *Luganda* words along with their *English* translations in random order. Using the information that you got from Assignment 1, determine the correct correspondences.

(Hint: *mata* → *milk*)

mazzi, nkoko, npisi, mazzi, kakoko, kalifoomu

water, hen, chloroform, hyena, urine, chick

Luganda is the most widely spoken language in Uganda. It is spoken by about 5 million people. It belongs to the Bantu branch of the *Niger-Congo* language family.

- Abhishek Dedhe

Problem 4: Divehi Numerals (15 marks)

Given below are some traditional numbers in *Divehi* with their *Hindu-Arabic* numeral translations, not necessarily in order.

faheh, dholhas dhihaeh, fassihi dhihaeh, fanas, dholhas faheh, hatheh, thin dholhas faheh, thineh, dholhas hatheh, fassihi, dholhas hathareh, hatheh dholhas hathareh

7, 19, 48, 88, 17, 3, 24, 16, 22, 5, 34, 41

Assignment 1:

Match the numbers to their corresponding traditional *Divehi translations*.

Assignment 2:

Translate the following numbers to traditional *Divehi* numerals. If you are unable to translate a number based on the given data, write “NP” in your answer booklet, and explain your reasoning in your solution.

- a. 15 b. 53 c. 67 d. 76

Divehi, also called *Maldivian*, is an *Indo-Aryan* language predominantly spoken by about 350,000 people in the Maldives, where it is the national language. *Divehi* is a descendant of *Maharashtri Prakrit* and is closely related to *Marathi*, *Konkani* and *Sinhalese*, but not mutually intelligible with them. The traditional *Divehi* number system was used until the middle of the 19th century, when the number system was restored to a modern decimal system.

- Sesh Sadasivam

Problem 5: Önge (20 marks)

Given below are some sentences in *Önge* along with their *corresponding* English translations.

Sl. No.	Önge	English
1	<i>mi chogegantitebe tukirikotalotaga</i>	<i>I pierced the fish with all the spears.</i>
2	<i>uemetabetebe</i>	<i>The dog drowned.</i>
3	<i>etia niko angibete belebe</i>	<i>We gave you a matchbox.</i>
4	<i>uemekotalotagatekkebe</i>	<i>All the dogs barked.</i>
5	<i>entoge ngialabukebe</i>	<i>The bachelor scolded you.</i>
6	<i>ueme ogentitebe</i>	<i>The dog pierced the husband.</i>

7	<i>onggege mi entueme belebe</i>	<i>The father gave me the puppy.</i>
8	<i>onggenegatekkebe</i>	<i>The old man barked.</i>
9	<i>allekotalota mialabukebe</i>	<i>All the women scolded me.</i>
10	<i>onggabe onggege choge belebe</i>	<i>The mother gave fish to the father.</i>
11	<i>etakotalota entuementitebe</i>	<i>All of us pierced the young dog.</i>
12	<i>entalle uema uebe chogega</i>	<i>The girl covered the dog with the fish.</i>

Assignment 1:

Translate the following sentences to *Önge*. If a sentence cannot be formed in *Önge* from the given data, write “NP” in your Answer Booklet and explain your reasoning.

- a) *All the old women covered the matchbox with the spear.*
- b) *The big dog barked.*
- c) *The unmarried woman gave you the fish.*
- d) *We pierced using all the spears.*
- e) *You all drowned.*

Assignment 2:

Give words in *Önge* for the following:

- | | |
|---------------------|---------------------------------------|
| a. <i>Old Woman</i> | e. <i>Bachelor Man (yet to marry)</i> |
| b. <i>Man</i> | f. <i>Boy</i> |
| c. <i>Woman</i> | g. <i>Mother</i> |
| d. <i>Girl</i> | h. <i>Father</i> |

Önge is a language belonging to the *Andamanese-Ongan* language family, spoken by the Ongan people of South Andaman. It was once a widespread language in the Andaman Islands until the British colonizers arrived. *Önge* is on the verge of extinction: In 1997, it was estimated that there were only 96 native speakers of the language. The surviving speakers are located at Dugong Creek and South Bay in Little Andamans.

- Aalok Sathe

Problem 6: Epic Greek Poetry (20 marks)

The Ancient Greeks were well-known for their love of mathematics, sciences, the arts and, of course, poetry. The great epics, the “Iliad” and the “Odyssey” were composed by Homer around 3000 years ago.

As with most Greek Poetry, Homer’s poems followed a *rhythmic meter*, so that each line contained syllables in a well-defined pattern. Homer’s epics, in particular, followed the *Dactylic Hexameter*, where each line of the poem contains 6 metrical ‘feet’. The first 5 ‘feet’ are identical, but the 6th ‘foot’ is shorter than the rest.

For this problem, the translations of the words are not important. Tone is also not important. This problem requires you to analyze rhythmic meters and find a general pattern in the arrangement of syllables.

Each of the following verses has been adapted from Homer’s “Odyssey” and follows the *Dactylic Hexameter*:

*ândra moi ênnepe, Moûsa, po lûtropon, hês mala pôlla
plângthe, e peî Trolî nês hiler ôn ptolî êthron e pêrse;
pôllone d'ânthrope pôn iden âstela kaî nolon êgno,
pôlla d'ho g'ên nopon tô pathen âlgela hôn kata thûmon
ârnumen ôs luthen tê hipsuch ên makai nôston he taîron.
âll' maloud' hês heta roûs kaper rûsato, îemen ôs per;
aûtomon gâr spheter êsin a tâsthali eîsin o lôn-to,
nêpiloî, hoî kata boûs hipe îonos êeli oîo
êsthilon; aûtâr ho toîsin a pheîleto nôstimon êmar.
tôn hamo thênge, the â, thuga têr Dios, eîpe kai hêmin.
Zênos en î mega roîsin Olÿmpia hâthrokoi êsan.
Laêrten he rôa, ton oûketi phâsi po lînde
Pâllamas Âthêna îe, ku rê Dikos, ôphra min aûton
ôuth'a Hêrakel î okut' Eûrytoi Oîchali êi,
ôichet', Ôdysse ôs mera gâthymou phaîdimon hyîon*

To help you understand the syllable-structure of Homer’s Epics, here are ten more verses in Ancient Greek. These verses could not have been part of the “Odyssey” because they do not follow the *Dactylic Hexameter*.

*labôntes de, ân dê kai autoî
amphoterô: Pelise men en eurychoroi laolkoi
autar ho gymnothe rhakeon polymetis Odysseus,
Hêliyos d'anôro ûse, li pôn peri kallêla limnên,
âipsâ d'ê mîos hêta rôisin pot rÿnas ê kêlsâ
kéklyte nÿn, Ithakêsioi, hôtî:
lygrôn, hôn ek Trôlîes êpêteilâtô Pallâs Âthêne.
Zeûs pater alloi mâkares theoî aiên eôntes,
égreo, Pênelopêia, phîlon ku tekôs, ôphra min idêai
hês êphamen, hô êpeita Pôseidoni ânakti*

Assignment:

Here are five more verses in Ancient Greek. Which of these verses could have been part of Homer's Epics? In other words, which verses follow the *Dactylic Hexameter*?

If a verse follows the *Dactylic Hexameter*, mark "Y" next to the corresponding verse number in your Answer Booklet. Otherwise, mark "N".

- a) *ângeliên periph rô Pênelopêia,*
- b) *Têlemach', oûketi kâla domôn apo têk' alalêsai,*
- c) *hôs ephath' Hêrmei pot, âll' ophra Aîgisthoi hâthrokoi hêmin*
- d) *tôn d'emeîbet' epeîta Gerêniôs hippôta Nêstor:*
- e) *oûte pôt' ein agora dîch' êbazomên oût' eni boûle,*

Be sure to describe the structure of the *Dactylic Hexameter* in Homer's Epics in your explanation.

1. A syllable is a unit of pronunciation uttered without interruption, loosely, a single sound. All words are made from at least one syllable. **2.** A 'foot' is an arbitrary unit in poetry consisting of a definite pattern of syllables. **3.** â, ê, î, ô, û and ÿ are specific vowels in Ancient Greek. h', t', d', g' and l' are specific consonants in Ancient Greek.

- Sesh Sadasivam

-----END OF QUESTION BOOKLET-----

We'd love to hear from you!

How did you like the test? Were the problems way too hard? Do you like our website?

Let us know after the test. Visit <http://www.plo-in.org/round-1-feedback/> and complete the survey.