Assignment 3
HUL479
Algorithms in Ancient India

April 15, 2018

Instructions:

- Due date for submission: 20th April 2017.
- Attempt all questions.
- Numbers to the right of each question indicate the marks.

1. What is a Pratyāhāra? How many pratyāhāras are possible with the following 5 śivasūtras? List all of them. (5)
   - a i u Ṇ
   - ṛ ḷ K
   - e o Ṇ
   - ai au C
   - h y v r Ṭ
   - l Ṇ
2. Given the following sets,
   {d,e,f,g,h}, {a,c,i}, {b,c,f,i} and {a,b,c,d,e,f,g,i}
   arrive at the linear arrangement of them providing logical arguments. (10)
3. Is it possible to arrange the following sets in a linear order? If yes, provide all possible solutions. Use Petersen's algorithm. (10)
   {d, e}, {a, b}, {b, c, d, f , g, h, i}, {f , i}, {c, d, e, f , g, h, i}, {g, h}.
4. What is anuvṛtti?
   Explain how anuvṛtti brings in brevity with the following set of sūtras. The words in parenthesis are borrowed from the earlier sūtras for complete understanding of the sūtras. (10)

- upadeśe ac anunāsik it 1.3.2
  उपदेशे अच् अनुनासिक इत्
- (upadeśe) hal antyam (it) 1.3.3
  उपदेशे हल् अन्त्यम् इत्
- (upadeśe) na vibhaktau tusmāḥ (it) 1.3.4
  उपदेशे न विभक्तौ तुस्माः इत्
- (upadeśe) ādiḥ ñiṭuḍavāḥ (it) 1.3.5
  उपदेशे आदिः ञिटुडवः इत्
- (upadeśe ādiḥ) ṣaḥ pratyayasya (it) 1.3.6
  उपदेशे आदिः षः प्रत्ययस्य इत्
- (upadeśe ādiḥ pratyayasya) cuṭū (it) 1.3.7
  उपदेशे आदिः प्रत्ययस्य चुटू इत्
- (upadeśe ādiḥ pratyayasya) laṣaku ataddhite (it) 1.3.8
  उपदेशे आदिः प्रत्ययस्य लशकु अतद्धिते इत्