

- (b) Write a shell script to input text and print the number of alphabets, vowels, words, numbers, special characters, without using *wc* command. **7**

OR

- (b) Write a C code to simulate the “Is” command of UNIX. **7**
- 4** Attempt the following : (any two) **14**
- (a) Write a note on IPC of UNIX.
 - (b) Briefly, explain the two data structure that describes the state of the process – Process table and the u-area.
 - (c) Write a note on semaphores.
- 5** Attempt the following : (any two) **14**
- (a) Write a note on *awk* command – as a programming tool of UNIX.
 - (b) Explain *sed* command of UNIX in detail.
 - (c) Which are the memory management policies adapted by UNIX kernel ? Briefly discuss their benefits and limitations.
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