

4712099

Question 21,22

### Unpaired Image-to-Image Translation

1. Input Image to Output image translation is done via mapping between the source domain  $X$  and target domain  $Y$ . This mapping must be learnt using training set of aligned image pairs. How does the approach of mapping taking place when in some tasks these image pairs are missing (no information on which input image belongs to which output image)?
  - a. A system that can capture the special characteristics of one image collection and finding out how these characteristics could be translated to another image collection in the absence of any paired image samples
  - b. Cycle consistency loss - The system should be cycle consistent such that mapping  $G: X \rightarrow Y$  and  $F: Y \rightarrow X$  should be inverses of each other and both mappings are bijections
  - c. Adversarial loss (indistinguishable from real images) should not be combined with cycle consistency loss to yield unpaired image-image translation.
  - d. Adversarial loss is combined with cycle consistency loss to yield unpaired image-image translation.

**Answer: d**

### Distributed Representations of Sentences and Documents

1. Paragraph Vector PV (paragraph token) is a distributed memory model that remembers the missing information from the current context, which is usually the topic of the paragraph. The next word is predicted as a result of the PV algorithm. Prediction is done by which of the following options:
  - a. The word vectors can be initialized randomly, but they capture semantics eventually as an indirect result of prediction task and the paragraph vectors predict the next word given contexts sampled from the paragraph.
  - b. The columns of Paragraph matrix represent paragraphs unique to the paragraphs and is not shared across paragraphs or documents and is trained via SGD, while the Word matrix has unique words as columns which is shared across all paragraphs and is trained via back propagation. (unsupervised training to get the word vectors, inference stage to get the paragraph vectors)
  - c. The concatenation or average of the matrix  $D$  with the context of three words is used to predict the fourth word using logistic classifier or SVM
  - d. All the above

**Answer d**