INSTRUCTIONS:

1. All Questions are Compulsory.
2. Make suitable assumptions wherever necessary and state the assumptions made.
3. Numbers to the right indicate marks.
4. Draw neat labeled diagrams wherever necessary.

Q.1	**Answer any two of the following**	2x6=12
a)	Explain HORUS with neat diagram.	
b)	Write a short note on HUB, Link and Satellite.	
c)	What is Schema on Write? Discuss.	
d)	Discuss the top layers of layered framework.	

Q.2	**Answer any two of the following**	2x6=12
a)	Explain in detail the basics of functional requirement.	
b)	With neat diagram discuss the basic utility design.	
c)	Write a python code to convert text to Horus.	
d)	What is Audit, balance and control layer? Explain.	

Q.3	**Answer any two of the following**	2x6=12
a)	Explain what Slowly changing dimensions in sun model.	
b)	What are the principles of data analysis? Explain.	
c)	Explain the following terms with an example i)Buyer ii)Ex-work iii)Delivered at terminal iv)Delivery at place	
d)	Explain the general rule for data source catalog.	

Q.4	**Answer any two of the following**	2x6=12
a)	Explain Person to time Sun model?	
b)	What is feature engineering? What are the common feature extraction techniques?	
c)	Explain precision recall, precision recall curve, sensitivity, specificity and F1 measure.	
d)	Why Binning is required? Discuss.	

Q.5	**Answer any two of the following**	2x6=12
a)	Explain Bivariate analysis? Give with example.	
b)	What is Clustering? Explain K-mean Clustering.	
c)	What is Support vector machine? Explain.	
d)	Write a note on Linear regression. Give some common application of linear regression in the real world.	