CLASS: M.TECH   SEMESTER : 4TH
BRANCH: COGNIZANT   SESSION : SP/2023

SUBJECT: CS637 ADVANCED DEEP LEARNING

TIME: 3 HOURS   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	Explain the architecture of Convolutional Neural network with suitable parameters.	[5]	1	2
Q.1(b)	Draw and explain the block diagram of VGG-16 and Resnet.	[5]	1	2
Q.2(a)	Explain the principles and architecture of autoencoder for image classification.	[5]	2	2
Q.2(b)	Compare different types of autoencoder and their applications in real-world problems.	[5]	2	4
Q.3(a)	How the variational autoencoder is different from autoencoder? Explain with architectural differences.	[5]	3	4
Q.3(b)	Provide a comprehensive overview of Variational Autoencoders (VAEs), including the underlying concepts, architecture, and mathematical formulation.	[5]	3	4
Q.4(a)	Discuss the design principles of GANs, including architecture choices, loss functions, and training techniques.	[5]	4	2,4
Q.4(b)	Analyze the ethical implications and challenges of using GANs in real-world applications, such as deepfakes, data privacy, and bias.	[5]	4	3
Q.5(a)	Provide a comprehensive overview of text representation techniques, including word embeddings, sentence embeddings, and document embeddings, and discuss their strengths and limitations.	[5]	5	5
Q.5(b)	Explore the practical applications of BERT in tasks such as text classification, named entity recognition, question answering, and text generation, and discuss the benefits and limitations of using BERT in real-world scenarios.	[5]	5	3,5

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