Total No. of Questions : 8]

SEAT No. :

PD-5258

[Total No. of Pages : 2

[6404]-293
B.E. (Artificial Intelligence & Machine Learning)
INFORMATION RETRIEVAL IN AI
(2019 Pattern) (Semester - VII) (418541)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates :

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Explain various techniques used to specify query in information visualization. **[9]**

b) Explain averaging techniques contribute to the performance evaluation of algorithms. **[9]**

OR

Q2) a) Discuss in details Precision & recall with example. **[9]**

b) Short Note on query specification in IR in detall with examples. **[9]**

Q3) a) Explain in detail Generic Multimedia indexing Approach and Automatic Feature Extraction with example. **[8]**

b) Explain the significance of automated methods for extracting features from multimedia content, and discuss how these extracted features enhance the efficiency and effectiveness of multimedia search and retrieval systems. **[9]**

OR

Q4) a) Explain One-Dimensional Time Series & Two-Dimensional color Images. **[8]**

b) Short Note on : **[9]**

i) Collection Partitioning

ii) Query Processing

P.T.O.

Q5) a) How does web crawling play a crucial role in the functioning of search engines? Describe the key processes involved in web crawling. **[9]**

b) What is hyperlink-based searching in Information Retrieval (IR)? Explain how hyperlinks are used to enhance search effectiveness, and mention any two popular algorithms that utilize hyperlink structure. **[9]**

OR

Q6) a) Explain the Terms of Search Engines : **[9]**

i) Ranking

ii) Crawling

iii) Indices

b) Explain in detail **[9]**

i) Centralized Architecture

ii) Distributed Architecture

Q7) a) Describe Need and Significance of Metasearch in Information Retrieval for AI. **[9]**

b) Write Note on : **[8]**

i) Need of Metasearch

ii) Basics working of metasearch

OR

Q8) a) Explain in detail Real Life Examples of metasearch engines. **[9]**

b) How a metasearch engine works? Explain in detail about the Metasearch along with its advantages and disadvantages. **[8]**

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Total No. of Questions : 8]

SEAT No. :

PD-4779

[Total No. of Pages : 2

[6404]-294
B.E. (AI & ML)
CLOUD COMPUTING
(2019 Pattern) (Semester - VII) (418542)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates :

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q. 7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Explain Infrastructure As A Service with diagram. **[6]**

b) Explain steps to launch an EC2 instance in AWS Cloud. **[6]**

c) Write Note on Amazon Simple DB and Elastic Block Store. **[6]**

OR

Q2) a) Describe the components of Microsoft Azure along with Microsoft services. **[6]**

b) What is VMware Acquisition in the Cloud? And Explore Amazon S3 Service in the cloud. **[6]**

c) Explain salesforce.com CRM. **[6]**

Q3) a) Discuss the terms: Big Table and HBase cloud data stores in cloud computing. **[6]**

b) Describe virtual storage containers. **[6]**

c) Describe the challenges in data storage on cloud. **[5]**

OR

Q4) a) Draw and explain the General Architecture of the Hadoop Distributed File System (HDFS). **[6]**

b) Explain GFS Cloud File system with a diagram. **[6]**

c) Write a Note on: i) Simple DB ii) Dynamo Cloud data stores. **[5]**

Q5) a) Describe Digital Signature and Public Key Infrastructure (PKI) in cloud based system. **[6]**

b) Explain any four cloud security policies in detail. **[6]**

c) Describe different risks in cloud computing and how to manage them? **[6]**

P.T.O.

OR

Q6) a) Write notes on Identity access management (IAM) and Single-Sign On (SSO). **[6]**

b) Define Encryption and discuss in detail with diagram. **[6]**

c) Write notes on i) Integrity ii) Threat iii) Availability. **[6]**

Q7) a) Explain open cloud consortium (OCC). **[6]**

b) Describe Docker workflow with suitable examples. **[6]**

c) Explain standards for cloud application developers. **[5]**

OR

Q8) a) Explain Open Virtualization Format (OVF). **[6]**

b) Explain common standards for security in cloud computing. **[6]**

c) Write short note on SMTP and POP protocols. **[5]**

Total No. of Questions : 8]

SEAT No. :

PD-4780

[Total No. of Pages : 2

[6404]-295
B.E. (A.I & M.L)
DEEP LEARNING FOR AI
(2019 Pattern) (Semester - VII) (418543)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates :

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q. 7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Explain working of LSTM in detail. **[10]**

b) What are the applications of a Recurrent Neural Network. (RNN)? Also explain which type of RNN it belongs to. **[8]**

OR

Q2) a) Compare the Difference Between a Feedforward Neural Network and Recurrent Neural Network? **[6]**

b) Explain Vanishing Gradient Descent problem for RNN. **[6]**

c) Interpret how LSTM proves efficient over RNN? **[6]**

Q3) a) What are the applications of autoencoders? **[10]**

b) Explain Undercomplete autoencoders. **[7]**

OR

Q4) a) What is a hyperparameter? Explain different hyperparameters that must be set before training. **[8]**

b) Explain denoising autoencoders in detail. **[9]**

Q5) a) When will you use transfer learning? Explain with examples. **[6]**

b) Draw Densenet architecture. **[6]**

c) Explain distributed representation? **[6]**

OR

P.T.O.

Q6) a) Explain domain adaptation. **[6]**

b) What are the advantages of Densenet? **[6]**

c) Why is the network called a Greedy Layer wise pretraining network? **[6]**

Q7) a) Explain Overview GAN structure. **[10]**

b) Explain GAN variants. **[7]**

OR

Q8) a) What are the advantages and disadvantages of the GAN model? **[10]**

b) How does Dall-E work? **[7]**

Total No. of Questions : 8]

SEAT No. :

PD4782

[Total No. of Pages : 2

[6404]-298

B.E. (Artificial Intelligence & Machine Learning)

AI IN DRONES

(2019 Pattern) (Semester - VII) (Elective - III) (418544C)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Attempt Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Explain the Payload types? **[6]**

b) Explain various types of non-dispensable Payload? **[6]**

c) What is Concept of kinematics and dynamics? **[6]**

OR

Q2) a) Explain Communication media detail. **[6]**

b) What is the Radio Communication? **[6]**

c) Explain Antenna types. **[6]**

Q3) a) Explain Global Positioning System in detail. **[6]**

b) Explain Control station composition in detail. **[6]**

c) Explain algorithm Waypoint navigation. **[5]**

OR

Q4) a) Explain Inertial Navigation. **[6]**

b) Determine Path planning algorithm Waypoint navigation with real life example. **[5]**

c) Explain Radio Tracking. **[6]**

Q5) a) What is Radio Control? **[6]**

b) Discuss in brief Flight Controller examples. **[6]**

c) Explain Transmitter in Flight Control. **[6]**

OR

P.T.O.

Q6) a) Explain Receivers in Flight Control. **[6]**

b) What is the ESC (Electronic Speed Controller)? **[6]**

c) What are Flight Control? Explain with an example. **[6]**

Q7) a) What are Beneficial Drones? **[6]**

b) What is Aerial Photography? **[6]**

c) What is difference between Search and Rescue? **[5]**

OR

Q8) a) What is Infrastructure Inspection? **[6]**

b) What is Precision Agriculture? **[5]**

c) Write short note on SURVEILLANCE and Delivery Drones. **[6]**

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Total No. of Questions : 8]

SEAT No. :

PD-5295

[Total No. of Pages : 2

[6404]-301
B.E. (Artificial Intelligence and Machine Learning)
DevOps in Machine Learning
(2019 Pattern) (Semester - VII) (418545C) (Elective - IV)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates :

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) i) What is TDD? Explain in brief: **[6]**

ii) Differentiate between Continues Integration & Continues Delivery? **[6]**

b) What is continuous Integration? Explain with suitable diagram of CI chain. **[6]**

OR

Q2) a) i) Explain Various SDLC for Designing CI & CD system. **[6]**

ii) Benefits of Continues Integration & Continues Delivery. **[6]**

b) Explain CI & CD Pipeline. **[6]**

Q3) a) What is Continues Delivery and continues Deployment? **[5]**

b) i) Compare Performance testing & non-performance testing. **[6]**

ii) Draw & explain basic deployment pipeline cycle. **[6]**

OR

Q4) a) i) What is difference between agile and DevOps? **[5]**

ii) Why Automated Testing is Essential for CI/CD? **[6]**

b) Explain different types of testing strategy. **[6]**

P.T.O.

Q5) a) i) What is MLOps and How it is Important? **[6]**

ii) Explain Different Roles and Responsibilities in MLOps. **[6]**

b) Explain Machine Learning Lifecycle. **[6]**

OR

Q6) a) Explain Various Components of MLOps. **[6]**

b) i) Differentiate between MLOps and DevOps. **[6]**

ii) Draw an Architecture of ML pipeline. **[6]**

Q7) a) Explain any one Tools to create ML pipelines. **[6]**

b) Write and explain Model Retraining. **[5]**

c) Explain the concept of Data Quality and Integrity in ML pipeline. **[6]**

OR

Q8) a) Explain in detail Monitoring and Logging process in ML Model Deployment. **[6]**

b) Write and explain the concept of Model replacement. **[5]**

c) Describe the concept of Model Versioning with example. **[6]**

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