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SEAT No. :

PC2564

[6354]-699

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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. 7 or 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 in detail the term NDCG. Explain with suitable example. [9]
b) What are the various techniques used to specify query in information visualization? [9]

OR

- Q2)** a) Explain in detail Visualization in Information System. [9]
b) Elaborate query specification in IR in detail with examples. [9]

- Q3)** a) Write short note on: [9]
i) GEMINI indexing approach
ii) MULTOS data model
b) Explain in detail Multimedia office Server (MULTOS). [8]

OR

- Q4)** a) What are Query Languages with respect to multimedia IR? Explain it in detail. [9]
b) Describe the architecture of Distributed IR. Why is DIR (Distributed Information Retrieval) necessary? [8]

- Q5)** a) Explain the following in brief. [9]
i) Web scraping
ii) Meta searches
iii) Search engines
b) What is ranking? Explain importance of ranking in detail. [9]

OR

P.T.O.

Q6) a) What is web Crawling? Explain techniques used by web crawlers to crawl the web. [9]

b) What is role of crawler in web searching? Write short note on Searching the web. [9]

Q7) a) Explain Difference between simple search and Metasearch. [9]

b) Explain basics working of metasearch. [8]

OR

Q8) a) Write Real Life Examples of metasearch engines. [9]

b) Explain Need and Significance of Metasearch. [8]



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B.E. (Artificial Intelligence & Machine Learning)

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 indicate full marks.*
- 4) Assume suitable data, if necessary.*

- Q1)** a) Define Platform as a Service (PaaS) and outline its key components. **[10]**
b) Describe the procedural steps required to initiate the launch of an EC2 instance within the AWS Cloud environment. **[8]**

OR

- Q2)** a) Explain the architecture of Google App Engine (GAE) and its working and Microsoft Azure Services Platform. **[10]**
b) Compare and contrast the advantages and disadvantages of adopting Software as a Service (SaaS) compared to traditional software licensing models. **[8]**

- Q3)** a) Explain Simple Storage Service (S3) in cloud computing, highlighting their respective functionalities and characteristics. **[9]**
b) Describe components of HDFS and Virtual storage containers. **[8]**

OR

- Q4)** a) Explain the Big tables and HBase in detail. **[9]**
b) Explain components of Google File System and cloud storage providers. **[8]**

- Q5)** a) Describe different risk and threats involved in cloud security mechanism. **[9]**
b) Explain the security mechanisms and security policies. **[8]**

OR

P.T.O.

- Q6)** a) Explain Sign-Sign-On (SSO) and Identity Access Management (IAM).[9]
b) Explain integrity, Authenticity, availability and Threat in cloud security.[8]

- Q7)** a) Explain following Standards for Messaging- SMTP, POP. [10]
b) How does Docker work, and provide an example to illustrate its functionality? [8]

OR

- Q8)** a) Write short note on: [10]
i) Standards for Application Developers
ii) Standards for Messaging in cloud computing
b) Explain Standards for security SAML OAuth , OpenID. [8]



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B.E. (Artificial Intelligence and Machine Learning)

DEEPLARNING FOR AI

(2019 Pattern) (Semester- VII) (418543)

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 wherever necessary.*

Q1) a) Describe Recursive Neural Network and types of Recursive Neural Network. Explain its advantages. **[10]**

b) Explain Long Short-Term Memory Networks (LSTM) in detail. **[8]**

OR

Q2) a) Explain Encoder Decoder architectures. Explain any two Real-world applications of encoder-decoder architecture. **[10]**

b) Explain how sequence to sequence model works. **[8]**

Q3) a) Explain the structure of regularized autoencoders. What is the purpose of sparsity constraint in sparse autoencoder? **[10]**

b) Describe Denoising Autoencoders, Contractive Autoencoders. **[7]**

OR

Q4) a) Explain the architecture of sparse autoencoder with suitable diagram. What are advantages of sparse encoder over usual autoencoder? **[10]**

b) Explain how the dimensionality reduction feature of autoencoder is useful in information retrieval task? **[7]**

P.T.O.

- Q5) a)** Explain Dense Net architecture in detail. **[10]**
- b)** Write Short note on **[8]**
- i) Representation Learning
 - ii) Distributed Representation.

OR

- Q6) a)** What is transfer learning? Elaborate transfer learning domain adaptation. **[10]**
- b)** Elaborate Variants of CNN in detail. **[8]**
- Q7) a)** What is Discriminator? Explain the different Applications of Generative Adversarial Networks? **[10]**
- b)** Write short note on Denoising and Sparsity. **[7]**

OR

- Q8) a)** Explain Generative Adversarial Network Architecture and its Components with neat diagram. **[10]**
- b)** Explain Different Types of GAN Models. **[7]**



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B.E. (Artificial Intelligence & Machine Learning)

AI IN DRONES

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

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 indicate full marks.*
- 4) *Assume suitable data if necessary.*

Q1) a) Explain the different types of Payload and their significance in drones.[9]

b) Describe radio communication methods used by drones in detail. [9]

OR

Q2) a) What are the concepts of kinematics and dynamics in drone? [9]

b) Demonstrate the different Antenna categories in drone. [9]

Q3) a) What is Global Positioning System? Describe with appropriate example. [9]

b) Describe the working of control station in drone. [8]

OR

Q4) a) Explain waypoint navigation using a relevant example. [8]

b) Describe how is path planning carried out in drone. [9]

P.T.O.

- Q5)** a) What does drone flight control mean? Explain in detail. [9]
- b) Explain how a drone's transmitter and receiver work? [9]

OR

- Q6)** a) What are the different types of electronic speed controllers. [9]
- b) Describe the different types of flight controllers? [9]

- Q7)** a) What do you mean by aerial photography? Explain with example. [9]
- b) Explain drone mapping and surveying. [8]

OR

- Q8)** a) What are the applications of drones in Surveillance? [9]
- b) Explain with an example of how a drone is used to inspect a building.[8]



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PC-2572

[Total No. of Pages : 2

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B.E. (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

DevOps in Machine Learning

(Elective - IV) (2019 Pattern) (Semester - VII) (418545C)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answers: 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) Define Continuous Monitoring. What are its benefits? Explain how Continuous Deployment is different from Continuous Monitoring? [9]
- b) What are factors involved in monitoring systems? Explain with suitable eg. black box and white box monitoring. [8]

OR

- Q2)** a) Explain various deployment pipeline practices and Commit stage with suitable case studies. [8]
- b) Explain the concept of Site Reliability engineering and its role in DevOps. [9]
- Q3)** a) Explain containerization using Docker. [9]
- b) Explain how version control is achieved using Git? [8]

OR

- Q4)** a) Explain Continuous integration with Jenkins. [8]
- b) Explain Serverless orchestration in Kubernetes. [9]
- Q5)** a) Explain with suitable diagram machine learning life cycle. How MLOPs is useful in this? [9]
- b) What is Motivation behind MLOPs? Explain how MLOPs is different than DevOps. [9]

P.T.O.

OR

- Q6)** a) Explain different roles involved in MLOPs. How these roles are different than DevOps? [9]
b) Explain how testing, monitoring and maintenance is carried out in MLOPs? [9]
- Q7)** a) Define MLOPs. Explain various stages of CI/CD in MLOPs using suitable case study/diagram. [9]
b) Explain the process of automation of ML through pipelines. [9]

OR

- Q8)** Write short notes on [Any 3] [18]
a) JIRA
b) Tools to create ML pipelines
c) Docker
d) Future trends in MLOPs

