INTERNAL ASSIGNMENT QUESTIONS
M.C.A. IV SEMESTER

2026

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION

(RECOGNISED BY THE DISTANCE EDUCATION BUREAU, UGC, NEW DELHI)

OSMANIA UNIVERSITY

(A University with Potential for Excellence and Re-Accredited by NAAC with "A" + Grade)

DIRECTOR

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Hyderabad – 7, Telangana State

PROF.G.RAM REDDY CENTRE FOR DISTANCE EDUCATION
OSMANIA UNIVERSITY, HYDERABAD – 500 007

Dear Students,

Each student has to write the answers to the Assignment questions with neat own handwriting using Blue Pen (Black Ink not allowed) for each paper. Assignments have to submit after the payment of Rs.500/- by showing the receipt of the same. If the Assignment is not submitted within stipulated time i.e. before the theory exams / last date is treated as absent.

Methodology for writing the Assignments (Instructions) :

1. First read the subject matter in the course material that is supplied to you.
2. If possible read the subject matter in the books suggested for further reading.
3. You are welcome to use the PGRRCDE Library on all working days for collecting information on the topic of your assignments. (10.30 am to 5.00 pm).
4. Give a final reading to the answer you have written and see whether you can delete unimportant or repetitive words.
5. The cover page of the each theory assignments must have information as given in FORMAT below.

FORMAT

1. NAME OF THE STUDENT :
2. ENROLLMENT NUMBER :
3. NAME OF THE COURSE :
4. SEMESTER (I, II, III & IV) :
5. TITLE OF THE PAPER :
6. DATE OF SUBMISSION :

6. Write the above said details clearly on every subject assignments paper, otherwise your paper will not be valued.
7. Tag all the assignments paper wise and submit them in the concerned counter.
8. Submit the assignments on or before **15.06.2026** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

DIRECTOR

MCA SEMESTER - IV

PAPER – PEC411 : BLOCK CHAIN TECHNOLOGIES

Note: Answer all the Questions. Each Question carries three marks Q10x3M=30M

1. a) What is Network Security? Why do we need to secure our network communication?
   b) Briefly describe the various security attacks.

2. Write notes on
   a) ECDSA
   b) Cryptocurrency
   c) Message Digest

3. What are the differences between Centralization and Decentralization? What is distributed consensus.

4. a) Explain about Hot and Cold Storage
   b) Differentiate between Splitting and Sharing Keys.

5. Write notes on
   a) Minning Incentives and Strategies
   b) Zero coin and Zero cash
   c) Minning Pools

6. Write notes on
   a) Hash Functions
   b) SHA-256
   c) Merkle Tree

7. a) What is Digital Signature? What is the importance of using digital signature in transactions.
   b) What is Block Chain Technology? What are the applications of Block Chain Technologies.

8. Write notes on
   a) Bitcoin Blocks
   b) Mechanics of Bitcoin and Bitcoin Script.

9. Write notes on
   a) Online Wallets and Exchanges
   b) Currency Exchange Markets

10. a) Briefly describe Bitcoin Mining and its characteristics.
    b) Illustrate Bitcoin and Anonymity

MCA SEMESTER - IV

PAPER – PE - 412 : DEEP LEARNING

Note: Answer all the Questions. Each Question carries three marks Q10x3M=30M

1. Define Deep Learning. Explain about backward propagation and forward propagation.
2. Explain about layers and blocks in deep learning.
3. Briefly describe about Recurrent Neural Networks.
4. What is multiscale object detection ? Explain it with an example.
5. What are the tools for deep learning ? Explain.
6. Write shortly on Ada delta and Adam algorithsm.
7. What is pooling? Explain about Alex Net.
8. Why recurrent units (GRU) is required.
9. Differentiate between CNN and FCN.
10. Explain about Generative Adversial Networks.

MCA SEMESTER - IV

PAPER – PEC421 : DIGITAL FORENSICS

Note: Answer all the Questions. Each Question carries three marks Q10x3M=30M

1. Define computer crimes and classify different types of cybercrimes. Explain various methods used by cybercriminals with suitable examples.
2. Discuss the architecture and components of a forensic data recovery workstation. Explain the hardware and software requirements used in forensic analysis.
3. Explain RAID data acquisition and remote network acquisition techniques. Discuss the tools and challenges involved in acquiring evidence from RAID systems and remote networks.
4. Describe the methods used to secure a computer incident or crime scene. Explain the precautions that investigators should take during evidence collection.
5. Explain the process of performing remote acquisitions in computer forensics. Discuss the challenges and security concerns involved.
6. Explain the legal concerns and privacy issues involved in computer forensic investigations. Discuss ethical responsibilities, laws, and challenges faced by investigators.
7. Explain the process of conducting computing investigations. Discuss the systematic approach followed during a digital forensic investigation.
8. Discuss forensic acquisition tools and validation techniques. Explain how investigators ensure the integrity and authenticity of acquired data.
9. Explain the techniques used for storing and preserving digital evidence. Discuss the importance of chain of custody in forensic investigations.
10. Describe the process of E-Mail investigations and E-Mail forensics. Explain the working of E-Mail servers and specialized E-Mail forensic tools used for analyzing email crimes and violations.

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PAPER – PEC – 422 : OPTIMISATION TECHNIQUES

Note: Answer all the Questions. Each Question carries three marks Q10x3M=30M

1. List out the classification of optimization problems?

2. What are the basic components of an optimization problem?

3. Examine the stationary points?

4. How do you select Convexity and Concavity of Functions of One Variable and Two Variable?

5. Explain the concept of sub-optimization and principle of optimality.

6. Discuss discrete versus continuous dynamic programming.

7. What is meant by dynamic programming? Explain its applications.

8. Illustrate forward recursive equations.

9. How do Evolutionary Algorithms adapt to dynamic environments.

10. Explain bounded objective function method

MCA SEMESTER - IV

PAPER – OE-431 : CONSTITUTION OF INDIA

Note: Answer all the Questions. Each Question carries three marks Q10x3M=30M

1. Explain the history of the making of the Indian Constitution. Discuss the major committees and their contribution to the framing of the Constitution.

2. Explain the significance of the Preamble to the Indian Constitution. Discuss the Basic Structure doctrine, Fundamental Rights, Fundamental Duties, and Directive Principles of State Policy.

3. Describe the structure of the Indian Union under the Constitution. Explain the relationship between the Union and the States.

4. Explain the powers and functions of the President of India. Write a note on the Prime Minister and Council of Ministers.

5. Explain the constitutional position, powers, and functions of the Governor in a State.

6. Discuss the role of the Chief Minister and Council of Ministers. Explain the importance and functions of the State Secretariat.

7. What is Local Administration? Explain its importance and objectives in India.

8. Describe the structure and functions of District Administration, Municipal Corporation, and Zila Panchayat.

9. Explain the role and functioning of the Election Commission of India in conducting free and fair elections.

10. Write a note on the powers and duties of the Chief Election Commissioner and State Election Commission.

MCA SEMESTER - IV

PAPER – VI OE – 432 : ORGANISATION BEHAVIOUR

Note: Answer all the Questions. Each Question carries three marks Q10x3M=30M

1. Explain Pepsi-cola's Dilemma
2. Draw and Explain line organization structure.
3. What are the types of decisions?
4. Differentiate Responsibility and Accountability.
5. What are the major Traits Influencing Organizational Behaviour.
6. Discuss Adam's Equity Theory.
7. Give Five Stages of Team Development.
8. Describe how conflict can be resolved.
9. What are the types of culture and how do employees know about culture?
10. List out the characteristics of Type A and Type B individuals.

MCA SEMESTER - IV

PAPER – OE 433 : INTELLECTUAL PROPERTY AND CYBER LAW

Note: Answer all the Questions. Each Question carries three marks Q10x3M=30M

1. Define Intellectual Property. Explain its meaning, nature, classification, and the importance of protection of Intellectual Property Rights.

2. Discuss the various forms of Intellectual Property such as Copyright, Trademarks, Patents, Designs, Geographical Indications, Plant Varieties Protection, and Biotechnology.

3. Explain the major international instruments concerning Intellectual Property Rights, including the Berne Convention and Universal Copyright Convention.

4. Write a note on WIPO, WTO and TRIPS. Explain their role in the international protection of Intellectual Property Rights.

5. Explain the meaning and historical evolution of Copyright in India under the Copyright Act,1957.

6. Discuss copyright in literary, dramatic, musical works, computer programmes and cinematograph films. Explain infringement and remedies under the Copyright Act.

7. Define Trademark. Distinguish between Trademark and Property Mark. Explain registration and passing off under the Trade Marks Act, 1999.

8. Explain the Designs Act, 2000. Discuss registration, rights of design holders and remedies for infringement of designs.

9. Define Patent. Explain the historical development of Patent Law in India and discuss patentable inventions and kinds of patents.

10. Explain the procedure for obtaining a patent under the Patents Act, 1970. Discuss rights of patentees, infringement of patent rights and remedies available.