R2725	Sub. Code
	2MS2C1

M.Voc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Software Development

PRINCIPLES OF COMPUTER NETWORKS AND CYBER SECURITY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A ($10 \times 1 = 10$)

Answer **all** the following objective type questions by choosing the correct option.

1. Which layer of the OSI model is responsible for routing data? (CO1, K1)

   (a) Physical Layer (b) Data Link Layer

   (c) Network Layer (d) Transport Layer

2. A ———— is a network that is confined to a relatively small area. (CO1, K1)

   (a) LAN (b) PAN

   (c) MAN (d) VAN

3. Which of the following is a design issue of the data link layer? (CO2, K1)

   (a) Routing and addressing

   (b) Flow control and error control

   (c) Application interface design

   (d) Hardware resource allocation

4. ———————— error detection method uses a mathematical polynomial calculation. (CO2, K1)

(a) Parity Check (b) CRC

(c) Checksum (d) Hamming Code

5. An adaptive routing algorithm is also known as ————————. (CO3, K2)

(a) Static Routing (b) Open Routing

(c) Dynamic Routing (d) Estimated Routing

6. The breaking up of a large packet into smaller ones for fitting into a network is called ————————. (CO3, K2)

(a) Re-assembly (b) Fragmentation

(c) Assembly (d) Segmentation

7. ———————— is the example of a passive attack. (CO4, K4)

(a) Denial of Service (DoS)

(b) Packet Sniffing

(c) Spoofing

(d) Man-in-the-Middle (MITM)

8. Which security mechanism ensures that the sender and receiver are genuine? (CO4, K4)

(a) Data Integrity (b) Authentication

(c) Access Control (d) Confidentiality

9. The process of converting plain text to cipher text is called ————————. (CO5, K2)

(a) Encryption (b) Decryption

(c) Translation (d) Conversion

10. What is the primary goal of a hash function in cryptography? (CO5, K2)

(a) Encrypt data for secure transmission

(b) Ensure message integrity by generating a fixed-length output

(c) Provide authentication for users

(d) Encrypt keys for secure storage

Part B $(5 \times 5 = 25)$

Answer **all** questions not more than 500 words each.

11. (a) Illustrate the characteristics of ARPANET. (CO1, K1)

Or

(b) Discuss the concept of network Protocol hierarchies. (CO1, K1)

12. (a) Write a note on Error Correction and Detection. (CO2, K3)

Or

(b) Discuss in detail about Point-to-Point Protocol (PPP). (CO2, K3)

13. (a) Demonstrate the concept of Fragmentation and its types. (CO3, K2)

Or

(b) Illustrate the Congestion Control Algorithm. (CO3, K2)

14. (a) Explain Network security attacks in detail. (CO4, K4)

Or

(b) Differentiate between Threat Risk and Vulnerabilities. (CO4, K4)

15. (a) Explain the substitution techniques with example. (CO5, K2)

Or

(b) Compare and contrast Symmetric and Asymmetric Cryptography. (CO5, K2)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Explain OSI Reference Model and its layers in detail. (CO1, K1)

Or

(b) Discuss in detail about Transmission media. (CO1, K1)

17. (a) Explain Data Link layer Design issues and its working principle. (CO2, K3)

Or

(b) Elucidate the Sliding Window Protocol in detail with an example. (CO2, K3)

18. (a) Illustrate Adaptive routing algorithm with examples. (CO3, K2)

Or

(b) Discuss about Network Layer Design Issues in detail. (CO3, K2)

19. (a) Analyze the impact of image processing attacks and its techniques. (CO4, K4)

Or

(b) Illustrate the Architecture of Network Security with neat sketch. (CO4, K4)

20. (a) Elucidate working procedure of Encryption method. (CO5, K2)

Or

(b) Explain the role of hash function in message authentication. (CO5, K2)

———————

R2726

Sub. Code
2MS2C2

M.Voc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Software Development

FUNDAMENTALS OF OPERATING SYSTEM

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. Virtual memory is a concept used to ————————. (CO1, K1)

   (a) Increase processing power

   (b) Provide the illusion of unlimited Memory

   (c) Store user data permanently

   (d) Reduce disk fragmentation

2. Process synchronization can be done on ————————. (CO1, K1)

   (a) hardware level (b) software level

   (c) both (a) and (b) (d) none of these

3. What is the smallest unit of execution in a process? (CO2, K2)

   (a) Program (b) Thread

   (c) CPU Core (d) Scheduler

4. Which of the following scheduling algorithms is preemptive? (CO2, K2)

(a) First-Come-First-Served (FCFS)

(b) Shortest Job Next (SJN)

(c) Round-Robin (RR)

(d) Priority Scheduling without preemption

5. ———————— is not a condition for solving the critical section problem. (CO3, K3)

(a) Mutual exclusion

(b) Progress

(c) Starvation

(d) Bounded waiting

6. The example of real-time scheduling is ————————. (CO3, K3)

(a) Shortest Job First (SJF)

(b) Rate Monotonic Scheduling (RMS)

(c) Round-Robin (RR)

(d) First-Come-First-Served (FCFS)

7. The Banker's Algorithm is used for ————————. (CO4, K4)

(a) Deadlock prevention

(b) Deadlock avoidance

(c) Deadlock detection

(d) Deadlock recovery

8. ———————— method involves terminating processes. (CO4, K4)

(a) Process preemption

(b) Resource allocation graph

(c) Process termination

(d) Safe state checking

9. Which memory management technique divides the memory into fixed-size blocks? (CO5, K5)

(a) Segmentation (b) Paging

(c) Swapping (d) Contiguous Allocation

10. In a distributed system, middleware is responsible for _____. (CO5, K5)

(a) Managing network hardware

(b) Providing communication and coordination between applications

(c) Allocating frames to processes

(d) Scheduling CPU resources

Part B ($5 \times 5 = 25$)

Answer **all** the questions not more than 500 words each.

11. (a) How Virtual machine differs from Physical machine? Explain. (CO1, K2)

Or

(b) Describe the components of Operating System. (CO1, K2)

12. (a) Differentiate User-level threads and Kernel-level threads. (CO2, K2)

Or

(b) Discuss the CPU Scheduling concepts. (CO2, K2)

13. (a) Explain the process of Synchronization. (CO3, K3)

Or

(b) Describe the Multiple Processors Scheduling in detail. (CO3, K3)

14. (a) Discuss the characteristics of Deadlock Recovery. (CO4, K4)

Or

(b) Compare Deadlock Prevention and Deadlock Avoidance. (CO4, K4)

15. (a) Describe the concept of Thrashing in detail. (CO5, K5)

Or

(b) Explain the concept of Virtual memory. (CO5, K5)

Part C ($5 \times 8 = 40$)

Answer **all** the questions not more than 1000 words each.

16. (a) Illustrate the structure of Operating System with example. (CO1, K2)

Or

(b) Explain the Storage Hierarchy in Operating System in detail. (CO1, K2)

17. (a) Discuss the Operations on Processes in detail. (CO2, K2)

Or

(b) Explain the concept of Inter-Process Communication (IPC) with example. (CO2, K2)

18. (a) Describe the functionalities of Semaphores with example. (CO3, K3)

Or

(b) Explain Synchronization Hardware mechanisms with example. (CO3, K3)

19. (a) Illustrate Banker's Algorithm with neat sketch. (CO4, K4)

Or

(b) Discuss the necessary conditions for Deadlock handling. (CO4, K4)

20. (a) Elucidate page replacement algorithm (FIFO, LRU, and Optimal) with example. (CO5, K5)

Or

(b) Demonstrate Communication protocols in distributed system. (CO5, K5)

R2727	Sub. Code
	2MS4G1

M.Voc. DEGREE EXAMINATION, APRIL – 2025

Fourth Semester

Software Development

PRINCIPLES OF DIGITAL MARKETING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. ———————— is commonly used for personalized digital marketing campaigns. (CO1, K2)

   (a) Blockchain

   (b) Artificial Intelligence (AI)

   (c) Quantum Computing

   (d) RFID

2. Which factor is crucial when selecting a domain name for a website? (CO1, K2)

   (a) Length of the name

   (b) Relevance to the business

   (c) Using random numbers

   (d) Avoiding keywords

3. ———————— is the primary advantage of email marketing over traditional direct mail. (CO2, K1)

(a) Higher cost

(b) Faster delivery and better tracking

(c) Less personalization

(d) Limited audience reach

4. ———————— social media platform is best for professional networking and B2B marketing. (CO2, K1)

(a) Instagram (b) Linkedin

(c) Snapchat (d) Pinterest

5. Which of the following is NOT a key element of online PR? (CO3, K4)

(a) Crisis communication

(b) Influencer outreach

(c) Ignoring negative reviews

(d) Brand storytelling

6. ———————— metric is crucial for evaluating the success of affiliate marketing. (CO3, K4)

(a) Website color scheme

(b) Conversion rate

(c) Domain authority

(d) Inventory turnover

7. ———————— is used for contactless payments in mobile devices. (CO4, K1)

(a) USB

(b) NFC (Near Field Communication)

(c) HDMI

(d) Bluetooth

8. Which law protects digital content from unauthorized copying? (CO4, K1)

(a) Cybersecurity Act

(b) Copyright Law

(c) Fair Use Policy

(d) Open Source Regulation

9. Which of the following is a common myth about creativity? (CO5, K3)

(a) Creativity is only for artists

(b) Creativity cannot be learned

(c) Only a few people are naturally creative

(d) All of the above

10. ———————— tool is commonly used to foster creativity. (CO5, K3)

(a) Mind mapping

(b) Bureaucratic planning

(c) Linear thinking

(d) Rigid structures

Part B (5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) What is digital marketing, and how is it different from traditional marketing? (CO1, K2)

Or

(b) Describe the important factors when choosing a domain name. (CO1, K2)

12. (a) Explain the role of personalization in email marketing. (CO2, K1)

Or

(b) What are different forms of social media used for marketing? (CO2, K1)

13. (a) Illustrate the tools used for online reputation monitoring. (CO3, K4)

Or

(b) What factors make an affiliate marketing program successful? (CO3, K4)

14. (a) How does NFC technology work in mobile payments? (CO4, K2)

Or

(b) What are the key functions of a payment gateway? (CO4, K2)

15. (a) Describe is the importance of design thinking in innovation. (CO5, K3)

Or

(b) What are some popular creativity tools used in organizations? (CO5, K3)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Describe the key technologies behind digital marketing and their significance. (CO1, K2)

Or

(b) Discuss the importance of understanding the digital consumer in marketing strategies. (CO1, K2)

17. (a) Explain the key components of an effective email marketing campaign. (CO2, K5)

Or

(b) Explain how businesses use social media dashboards for marketing analytics. (CO2, K5)

18. (a) Discuss the significance of strategic partnerships in business expansion. (CO3, K4)

Or

(b) Compare different online channels for business promotion and their effectiveness. (CO3, K4)

19. (a) Discuss the role of mobile payments in the digital economy. (CO4, K2)

Or

(b) Discuss the Importance of network innovation and patents in payment systems. (CO4, K2)

20. (a) Compare and contrast creativity, innovation and design thinking. (CO5, K3)

Or

(b) Discuss how digital tools have enhanced creativity and design thinking. (CO5, K3)

———————

R2728	Sub. Code
	2MS4G2

M.Voc. DEGREE EXAMINATION, APRIL – 2025

Fourth Semester

Software Development

FUNDAMENTALS OF INDUSTRY 4.0 and 3D PRINTING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. ———————— technology is a key driver of Industry 4.0. (CO1, K2)

   (a) Steam power

   (b) Artificial Intelligence

   (c) Typewriters

   (d) Coal mining

2. Which of the following technologies helps in real-time data collection for Industry 4.0? (CO1, K2)

   (a) Steam Engines

   (b) Sensors and IoT Devices

   (c) Paper-based Records

   (d) Water-powered Machines

3. ———————— connects physical devices to collect and exchange data in real-time. (CO2, K3)

(a) Artificial Intelligence (AI)

(b) Internet of Things (IoT)

(c) Steam Power

(d) Traditional Manufacturing

4. ———————— enables real-time tracking and monitoring in smart logistics. (CO2, K3)

(a) Manual Records (b) RFID and GPS

(c) Steam Engines (d) Morse Code

5. ———————— is an example of robotic automation in Industry 4.0. (CO3, K4)

(a) Manual labor in factories

(b) Automated production lines using AI-driven robots

(c) Traditional conveyor belt manufacturing

(d) Paper-based quality control

6. In which of the following the Cyber-Physical Systems (CPS) are primarily used? (CO3, K4)

(a) Agriculture

(b) Smart manufacturing

(c) Healthcare

(d) All of the above

7. How does 3D printing differ from CNC machining? (CO4, K5)

(a) 3D printing is subtractive, CNC is additive

(b) CNC machining uses layers, 3D printing does not

(c) 3D printing builds objects layer by layer, CNC removes material

(d) Both use the same process

8. ———————— material is commonly used in Fused Deposition Modeling (FDM). (CO4, K5)

(a) Liquid resin

(b) Powdered metal

(c) Thermoplastic filament

(d) Ceramic

9. Who invented the first 3D printing technology, Stereolithography (SLA)? (CO5, K5)

(a) Karl Benz

(b) Charles Hull

(c) Nikola Tesla

(d) Thomas Edison

10. What is the primary file format used for 3D printing? (CO5, K5)

(a) .JPEG (b) .DOCX

(c) .STL (d) .MP4

Part B (5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Explain the four industrial revolutions and their key innovations. (CO1, K2)

Or

(b) Discuss the role of predictive analytics in Industry 4.0. (CO1, K2)

12. (a) Differentiate between IoT and Industrial Internet of Things (IIoT). (CO2, K3)

Or

(b) What are Smart Devices, and how do they contribute to Industry 4.0? (CO2, K3)

13. (a) What is robotic automation, and how does it benefit Industry 4.0? (CO3, K4)

Or

(b) What is the role of Artificial intelligence in Cyber-Physical Systems? (CO3, K4)

14. (a) How does CNC machining differ from 3D printing? (CO4, K5)

Or

(b) Explain the role of CAD (Computer-Aided Design) in 3D printing. (CO4, K5)

15. (a) What are the key components of a 3D printing machine? (CO5, K5)

Or

(b) Explain the RP Information Workflow from design to final product. (CO5, K5)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Explain the role of AI, IoT and Big Data in Industry 4.0 with examples. (CO1, K2)

Or

(b) How does automation and robotics enhance efficiency in Industry 4.0? Explain. (CO1, K2)

17. (a) Describe the concept of Smart Logistics and the technologies enabling real-time supply chain optimization. (CO2, K3)

Or

(b) What is Predictive Analytics, and how does it help industries optimize performance and efficiency? (CO2, K3)

18. (a) What are Collaborative Robots (Cobots), and how do they improve human-robot collaboration? (CO3, K4)

Or

(b) Compare traditional cyber security models with cyber security approaches in Industry4.0. (CO3, K4)

19. (a) Explain the general process of 3D printing with an example. (CO4, K5)

Or

(b) Explain the importance metal 3D printing and its impact on industries. (CO4, K5)

20. (a) Describe the role of Rapid Prototyping in Time Compression Engineering. (CO5, K5)

Or

(b) Classify the different types of Rapid Prototyping processes and explain their working principles. (CO5, K5)

———————