



DIPLOMA IN COMPUTER NETWORKS AND SYSTEMS ADMINISTRATION (DCNSA)

LEVEL II

NETWORK OPERATING SYSTEMS

MONDAY: 1 December 2025. Afternoon Paper.

Time Allowed: 3 hours.

This paper has two (2) sections. SECTION I has twenty (20) short response questions of two (2) marks each. SECTION II has three (3) practical questions of sixty (60) marks. Answer ALL questions. Marks allocated to each question are indicated in the question.

Required Resources:

- **Windows server 2016/2019/2022 Image**
- **Oracle Virtual box**
- **Linux/Windows computer**

SECTION I (40 MARKS)

1. As a user support technician for Link-end Tech Solutions, how would you make sure that, with authentication controlled centrally throughout the network environment, only authorised personnel have access to network resources? (2 marks)
2. Network Operating Systems (NOS) offer efficient management and communication tools, enhancing administrators' ability to troubleshoot and maintain network stability through command-line tools like PowerShell. Which PowerShell command can be used to detect potential IP address conflicts on a local network? (2 marks)
3. In a network environment, which Network Operating System (NOS) type would you use for specialised devices like network-attached storage or routers? (2 marks)
4. Administrators want to track and log all system and security events in a Windows environment. Which tool enables centralised event logging? (2 marks)
5. You are the system network administrator for your company. Which Network OS architecture element would you control to efficiently manage hardware resources and process scheduling in a networked environment? (2 marks)
6. A company wants to consolidate multiple servers into a single physical machine to reduce hardware costs but maintain independent OS environments. Which type of virtualisation allows this? (2 marks)
7. In a contemporary Network Operating System (NOS) environment, how would you centralise network control to guarantee dynamic resource allocation and boost network technician productivity? (2 marks)
8. ABC Ltd. wants a storage solution that provides high capacity, redundancy and fault tolerance using multiple physical disks as part of the business continuity plan. Which configuration should they deploy? (2 marks)
9. A network administrator wants to monitor and control traffic based on the content of the messages rather than just IP addresses. Which type of firewall achieves this? (2 marks)
10. During a network installation project, which server would you set up to oversee encrypted email communication and guarantee users' safe internal and external interactions? (2 marks)

11. A Linux system requires regular automated backups and file monitoring for changes. Which native scheduling tool allows this to run automatically? (2 marks)
12. When performing an administrative task to enforce access control policies on a Linux server, which Linux command would you use to modify a user's password to improve security? (2 marks)
13. A network technician wants to verify whether a remote host is reachable and measure the latency of packets. Which command utility can be used to perform this? (2 marks)
14. As a technician performing a storage reconfiguration task, how would you handle malicious software and advanced viruses on a hard drive? (2 marks)
15. Organisations monitor network traffic to detect threats and performance issues. Which device inspects network packets to identify suspicious activity and enforce security policies? (2 marks)
16. Which types of login and system configuration events should be monitored closely to detect possible security breaches or insider threats on Windows? (2 marks)
17. In enterprises with distributed Active Directory domains, locating domain controllers efficiently is crucial for authentication and service availability. Which Active Directory component stores information about all domain controllers to assist clients in the nearest domain controller? (2 marks)
18. DNS servers can operate in different modes, determining whether they resolve queries directly or forward them to other servers. The behavior called upon when a DNS server forwards a client's query to another DNS server rather than resolving it from its cache or zone data is known as _____. (2 marks)
19. Within the DNS hierarchy, certain servers maintain the authoritative data for top-level domains and provide direction for further resolution. What is the term for the DNS server that directs queries to the correct authoritative server for a specific domain when it does not have the domain's records? (2 marks)
20. Proper network configuration ensures a server can reliably join a domain and access domain services. Besides a static IP, which settings allow a server to resolve names and communicate with domain controllers before installing AD DS? (2 marks)

SECTION II (60 MARKS)

21. Create a word processor document named "Question 21" and use the document to save solution to questions (a) to (e) below.

You are tasked with ensuring optimal storage performance and reliability on a Windows Server machine. As part of routine system administration, carry out the following disk management and optimisation tasks:

- (a) Using a suitable administrative console, generate a disk performance report that displays the utilisation and health status of all connected drives. (4 marks)
- (b) Identify the drive on which the network operating system is installed. Analyse its performance and health status and capture a screenshot showing your evaluation. (4 marks)
- (c) Configure an automated task to run disk optimisation on a weekly basis for all system drives. (4 marks)
- (d) Perform a manual optimisation process on the system drive and present a screenshot showing the before-and after state of disk performance. (4 marks)
- (e) Use an appropriate system monitoring tool to review the history of scheduled optimisation tasks. Provide a screenshot as evidence of whether the most recent task executed successfully. (4 marks)

Save "Question 21" document and upload.

(Total: 20 marks)

22. Create a word processor document named “Question 22” and use the document to save solution to questions (a) to (e) below.

You are appointed as a Server administrator responsible for configuring server features, monitoring resources, safeguarding data and generating diagnostics to ensure system reliability, performance and business continuity.

Required:

(a) Install and enable the Windows Server Backup feature on your server. (4 marks)

(b) Configure a basic backup schedule to protect critical system data. (4 marks)

(c) Using Resource Monitor, identify the top three processes generating the highest level of disk activity. (4 marks)

(d) Display detailed system performance information including:

- Processor utilisation.
- Physical memory usage.
- System uptime.

(4 marks)

(e) Capture the screenshot showing how to add a user in the current PC addition of a new user account for authorisation to use the machine. (4 marks)

Capture Screenshots of the output, save “Question 22” document and upload.

(Total: 20 marks)

23. Create a word processor document named “Question 23” and use the document to save solution to questions (a) to (d) below.

(a) As a system administrator, you must ensure that the Print Spooler service is always active on a Windows system to guarantee uninterrupted printing. Configure the service to start automatically with every system reboot using an appropriate administrative tool. (6 marks)

(b) You suspect that a workstation has hardware components with driver or device malfunctions affecting system stability. Using Device Manager, perform the following tasks: (4 marks)

- (i) Access Device Manager and display the list of installed hardware devices.
- (ii) Identify and highlight any devices with a yellow warning icon or red error indicator.

(c) As a network administrator, you are required to disable USB storage devices on a Windows server to prevent unauthorised data transfer. Using the Registry Editor, navigate to the appropriate registry path, create or modify the necessary key/value and configure it so that USB storage devices are blocked on the system. (4 marks)

(d) A workstation on your network requires enhanced auditing for security compliance. Using the Local Security Policy console, configure an audit policy that logs successful and failed logon attempts. (6 marks)

Capture Screenshots of the output, save “Question 23” document and upload.

(Total: 20 marks)

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DIPLOMA IN COMPUTER NETWORKS AND SYSTEMS ADMINISTRATION (DCNSA)

LEVEL II

NETWORK OPERATING SYSTEMS

MONDAY: 18 August 2025. Afternoon Paper.

Time Allowed: 3 hours.

Answer ALL questions. This paper has two (2) sections. SECTION I has twenty (20) short response questions of two (2) marks each. SECTION II has three (3) practical questions of sixty (60) marks. Marks allocated to each question are indicated in the question.

Required Resources:

- **Windows server 2016/2019/2022 Image**
- **Oracle Virtual box/VMware workstation pro**
- **Linux/Windows computer**

SECTION I (40 MARKS)

1. In a multi-site Active Directory environment, which component allows users to efficiently search for and locate objects such as printers, users and shared folders across domains in the forest? (2 marks)
2. The term that describes the behaviour of a DNS server that queries other servers to resolve a domain name when it lacks the information in its local cache is known as _____. (2 marks)
3. In the DNS hierarchy, what is the term for the server that stores actual DNS records for specific domain names? (2 marks)
4. The IT department of TY Group of Schools wants to install Active Directory but is unsure of the necessary configurations. What network settings must be configured on the server before installing Active Directory Domain Services (ADDS) to ensure the server retains a consistent network identity and is always reachable by domain clients? (2 marks)
5. After establishing a document management policy, XYZ Tech Solutions requires a centralised solution that allows employees to securely store, share and access files over the network. The most suitable server role for this function is known as _____. (2 marks)
6. Which server role should a small to medium-sized enterprise deploy to centrally manage print tasks and network-connected printers across multiple departments? (2 marks)
7. Which utility does a Windows client use to request a Ticket Granting Ticket (TGT) from the Domain Controller? (2 marks)
8. Which Active Directory feature enables administrators to apply rules and settings such as password policies to users and computers? (2 marks)
9. Efficient network services are crucial in large enterprise environments. Which feature of a Network Operating System enables centralised management of IP addresses across multiple networks? (2 marks)
10. Virtualised IT environments demand both scalability and reliability. Which component allows multiple virtual machines to run on a single physical server? (2 marks)

11. Before you can use a data storage device, it needs to be properly prepared. Which disk operation is responsible for setting up a file system on the device to enable data storage and retrieval? (2 marks)

12. In a Network Operating System (NOS) environment, ensuring consistent data access and optimal performance is essential. Which type of storage device uses flash memory instead of spinning disks, thereby offering greater durability and reduced risk of mechanical failure? (2 marks)

13. Firewalls enforce security rules to control network traffic. Which type of firewall filters this traffic based on protocol, port numbers, source and destination IP addresses? (2 marks)

14. A smart card must be initialised with user-specific information before it can be used in a secure network. What process is used to load credentials and configuration data onto a smart card? (2 marks)

15. Reducing the requirement for human input improves administrative efficiency in a network. Which open-source tool is commonly used in Linux to perform file integrity checks and can be scheduled through cron? (2 marks)

16. Scalable network infrastructure supports growing user demands and traffic loads. Which hierarchical network design layer is primarily responsible for routing, filtering and policy-based access control? (2 marks)

17. Network operating systems offer efficient management and communication tools, enhancing administrators' ability to troubleshoot and maintain network stability through command-line tools like PowerShell. Which PowerShell command can be used to detect potential IP address conflicts on a local network? (2 marks)

18. In multi-tenant environments, the technique that enables containers to share the host OS kernel while maintaining isolated environments for each user is referred to as _____. (2 marks)

19. Optimising resource utilisation can be achieved by running multiple operating systems on a single physical machine. Which type of virtualisation allows multiple OS instances to operate independently on the same hardware? (2 marks)

20. Which windows security feature helps prevent unauthorised changes to a computer by prompting for administrative approval when elevated privileges are required? (2 marks)

SECTION II (60 MARKS)

21. Create a word processor document named “Question 21” and use the document to save solution to questions (a) to (e) below.

You have been tasked with maintaining the performance of a file server running Windows Server. One of the routine tasks is to optimise the system’s drives to ensure faster file access and better disk health.

Required:

(a) Use a suitable server management tool to capture a screenshot showing the fragmentation level of the disk(s). (4 marks)

(b) Analyse the fragmentation status of the drive that hosts the network operating system and capture a screenshot to illustrate your findings. (4 marks)

(c) Configure a monthly optimisation schedule for all available drives and capture a screenshot to illustrate your findings. (4 marks)

(d) Run a defragmentation process on the drive to reorganise fragmented files so that related data is stored closer together. Capture a screenshot showing the results. (4 marks)

(e) Using an appropriate tool, check whether the scheduled optimisation completed successfully and capture a screenshot to illustrate your findings. (4 marks)

Save “Question 21” document and upload.

(Total: 20 marks)

22. Create a word processor document named “Question 22” and use the document to save solution to questions (a) to (e) below.

(a) Install the iSCSI Target Server feature and capture a screenshot displaying the successful installation status. (4 marks)

(b) Using your server system, configure an iSCSI target and initiator on the same machine by using the loopback IP address (127.0.0.1). Capture a screenshot of the iSCSI session details. (4 marks)

(c) Using a system monitoring tool appropriate to your operating system, identify the top four processes consuming CPU resources. Capture a screenshot of the output. (4 marks)

(d) Using an appropriate system tool, display the current memory values for the following metrics:

- (i) Available memory.
- (ii) Cached memory.
- (iii) Total memory.

Capture a screenshot of the output. (4 marks)

(e) Using an appropriate system tool on your network operating system, display the list of network listening ports along with their firewall status. Capture a screenshot of the output. (4 marks)

Save “Question 22” document and upload. **(Total: 20 marks)**

23. Create a word processor document named “Question 23” and use the document to save solution to questions (a) to (d) below.

(a) As a system administrator, you are required to ensure that the Windows Update service starts automatically after every system reboot. Use appropriate tool to configure the Windows Update service to start automatically. Capture a screenshot of your output. (6 marks)

(b) You suspect that a computer experienced an unexpected reboot within the last 24 hours. Using an appropriate tool, carry out the following tasks to investigate the issue:

- (i) Display System event logs.
- (ii) Apply a filter to display only events related to shutdowns or restarts.

Capture a screenshot to display the output. (4 marks)

(c) You want to check if hardware issues could be affecting system stability. Use an appropriate built-in diagnostic tool to allow the system to perform diagnostic tests on the next reboot.

Capture and provide a screenshot showing the dialog box with both restart options. (4 marks)

(d) You manage a Windows machine in a laboratory with a user account for routine maintenance tasks, but the user cannot shut down the system due to insufficient privileges. Using the appropriate console, configure the “Shut down the system” user right for the available local user account to ensure they can power off the machine when needed. (6 marks)

Capture a screenshot of your output.

Save “Question 23” document and upload. **(Total: 20 marks)**

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DIPLOMA IN COMPUTER NETWORKS AND SYSTEMS ADMINISTRATION (DCNSA)

LEVEL II

NETWORK OPERATING SYSTEMS

MONDAY: 2 December 2024. Afternoon Paper.

Time Allowed: 3 hours.

Answer ALL questions. This paper has two sections. SECTION I has twenty (20) short response questions. Each question is allocated two (2) marks. SECTION II has three (3) practical questions of sixty (60) marks. Marks allocated to each question are indicated in the question.

Required Resources:

- **Windows Server 2016/2019/2022 image**
- **Oracle Virtual box**
- **Linux/Windows computer**

SECTION I (40 MARKS)

1. State the server role that manages file storage and retrieval so that users can exchange resources and documents over a network. (2 marks)
2. State the security method that provides security for Internet of Things (IoT) devices to make them less vulnerable to cyber-attacks as a result of weak security measures. (2 marks)
3. The _____ network operating service allows clients to access and store files on the server. (2 marks)
4. Which network architecture uses a dedicated server to manage requests and provide resources or services, while other nodes function as clients that request and utilise these services? (2 marks)
5. Which is the critical step during the installation of network operating system prepares the disk for data storage by creating a file system and organising the disk into partitions? (2 marks)
6. _____ is a network operating system security mechanism that controls access to an app, network, or system based on the internet protocol address of the incoming connections. (2 marks)
7. The _____ is a protocol that provides for secure file transfers for cloud services. (2 marks)
8. Peer-to-peer network operating systems handle network resources and services without the need for a dedicated server. Which role requests and consume services or resources from other nodes? (2 marks)
9. In the context of network architecture, which load balancing algorithm is best suited for dynamic workloads and can effectively distribute traffic across servers based on their current performance and load? (2 marks)
10. What do we call the regular network operating system configurations and user access checks to ensure compliance with organisational policies? (2 marks)
11. Selecting the appropriate configuration management tool is important when handling user and computer settings within a Windows domain. Which tool is commonly used in a network to set and enforce policies for a wide range of users and computers? (2 marks)

12. The _____ network operating system component translates human-readable domain names like www.example.com, into IP addresses like 192.0.2.1 to allow computers communicate with each other over networks. (2 marks)

13. When installing hardware in a network environment, selecting the appropriate installation procedure is crucial for optimal performance. Which installation method is typically used to integrate new servers into an existing network infrastructure? (2 marks)

14. State the **BEST** backup method for network environments that requires minimal user intervention and automatic data protection across multiple connected devices. (2 marks)

15. When upgrading servers in a network environment, minimising downtime is paramount. Identify the technique that is commonly used to ensure a seamless transition while maintaining service continuity during a server upgrade. (2 marks)

16. Which approach is commonly used to validate the success of a server upgrade and guarantee that all systems are operational post-upgrade? (2 marks)

17. Selecting the appropriate configuration tool is essential for effective network testing and validation. State the tool that is typically used to test network device configurations to ensure network consistency and efficiency in performance. (2 marks)

18. Using the right scripting tool is crucial when automating administrative tasks in Windows server environments. What tool is most commonly employed to create scripts for automating repetitive tasks and managing system configurations? (2 marks)

19. Write the command you can use to transfer a folder named Project from C:\Work to D:\Work in command prompt. (2 marks)

20. Which method is normally deployed to test and certify the functioning and reliability of web and application servers within a network operating system before they go live? (2 marks)

SECTION II (60 MARKS)

21. Create a word processor document named “Question 21” and use the document to save solutions to questions (a) to (e) below.

(a) Install File Server Resource Manager (FSRM) to configure, monitor and control disk space usage on the server. (6 marks)

(b) Configure a quota limit of 200MB per user on drive C using FSRM. (4 marks)

(c) Configure the notification limits for Email, Event Log, Command, and Report to trigger every 1 hour. (4 marks)

(d) Prevent audio and video files from being saved to C: drive. (4 marks)

(e) Display storage reports task properties. (2 marks)

Save “Question 21” document and upload.

(Total: 20 marks)

22. Create a word processor document named “Question 22” and use the document to save solutions to questions (a) to (e) below.

You have been asked to monitor system events on your Network Operating System.

(a) Display only Critical and Error level events from the last 24 hours. (4 marks)

(b) Filter the logs to show only Audit Failures related to logon events for the past week. (4 marks)

- (c) Filter the Application log to show only events related to the DNS Client service. (4 marks)
- (d) Display disk-related warnings and errors. (4 marks)
- (e) Create a custom view to track system start-up and shut down events. (4 marks)

Save “Question 22” document and upload.

(Total: 20 marks)

23. Create a word processor document named “Question 23” and use the document to save solutions to questions (a) to (e) below.

In the context of administrative tools perform the following:

- (a) Using an appropriate name configure a scheduled task that runs a script every day at 9:00 a.m. (6 marks)
- (b) Display shadow copies status of the Network operating system disk management. (4 marks)
- (c) Display permissions for active directory users and computers. (4 marks)
- (d) Display optimisation of drives to help computers run more efficiently. (2 marks)
- (e) Set the Maximum Memory for the Operating System Boot Options to be 4GB. (4 marks)

Save “Question 23” document and upload.

(Total: 20 marks)

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DIPLOMA IN COMPUTER NETWORKS AND SYSTEMS ADMINISTRATION (DCNSA)

LEVEL II

NETWORK OPERATING SYSTEMS

MONDAY: 19 August 2024. Afternoon Paper.

Time Allowed: 3 hours.

Answer ALL questions. This paper has two sections. SECTION I has twenty (20) short response questions. Each question is allocated two (2) marks. SECTION II has three (3) practical questions of sixty (60) marks. Marks allocated to each question are indicated in the question.

Required Resources:

- **Windows Server 2016/2019/2022 image**
- **Oracle Virtual box**
- **Linux/Windows computer**

SECTION I (40 MARKS)

1. Name the server that translates IP addresses to domain names and the other way around. (2 marks)
2. Which feature of a network operating system ensures that data is NOT lost in the event of a power failure or system crash? (2 marks)
3. Which model is typically used to describe client-server communication where the client initiates requests and the server responds to those requests? (2 marks)
4. A feature of network operating system that promotes fault tolerance and high availability is known as _____. (2 marks)
5. What is the name given to a process of setting up hardware and software to work together using an operating system? (2 marks)
6. State the name of a windows server role that enables a network administrator to run multiple operating systems on one physical computer. (2 marks)
7. Which method is commonly used to ensure data security during transmission between a client and a server? (2 marks)
8. In the context of network operating system, which feature allows a system to continue operating even when a component fails? (2 marks)
9. What is a “deadlock” in the context of multiprocessing? (2 marks)
10. Directly installing the Network Operating System (NOS) from media like CDs, DVDs or USB drives on each device individually is known as _____. (2 marks)
11. Which file system is commonly used in network operating systems for better security and reliability? (2 marks)
12. What is usually the first physical step in building a physical server? (2 marks)
13. Which environment is best for testing the update process on the network server before deploying it to the production server? (2 marks)

14. What technique is used to share network traffic across multiple servers to ensure no single server becomes overwhelmed? (2 marks)

15. Which Windows Server role handles file sharing and network-attached storage (NAS)? (2 marks)

16. Name the network attack that involves convincing a user to divulge confidential information by pretending to be a trusted individual. (2 marks)

17. What do we call the short, informative text boxes that appear when a user hovers over a graphical user interface (GUI) component such as a button or icon with the mouse cursor? (2 marks)

18. A backup technique that involves storing data in a separate location to protect against local calamities is referred to as _____. (2 marks)

19. A web service component that functions as a directory service for registering and discovering web services is known as _____. (2 marks)

20. State the management console in Windows Server that helps Information Technology (IT) professionals manage both local and remote Windows-based servers from their desktops, without requiring either physical access to servers or the need to enable Remote Desktop protocol (RDP) connections to each server. (2 marks)

SECTION II (60 MARKS)

21. Create a word processor document named “QUESTION 21” and use the document to save screenshots of the solutions to questions (a) to (e) below.

(a) Create a domain name called kasneb.local. (6 marks)

(b) Create a new Organisational Unit (OU) called "Marketing" within the domain and safeguard it against accidental deletion. (4 marks)

(c) Create a user named "Zepha Wde" under the container named “Marketing”. (4 marks)

(d) Create a group named "Marketing_User" under the container named “Marketing”. (4 marks)

(e) Add user "Zepha Wde" to "Marketing_User" group. (2 marks)

Save “QUESTION 21” document and upload. (Total: 20 marks)

22. Create a word processor document named “QUESTION 22” and use the document to save solutions to questions (a) to (e) below.

Perform the following configurations and capture the screenshots of your results:

(a) Allocate a 50GB space to windows server. (4 marks)

(b) Display windows server license terms. (4 marks)

(c) Display a new partition on windows server. (4 marks)

(d) Configure windows server network with the following:
IP address : **192.168.1.101**
Subnet Mask : **255.255.255.0**
Default gateway: **192.168.1.254**
Preferred DNS server:**192.168.1. 254** (4 marks)

(e) Display the initiator name for iSCSI (Internet Small Computer Systems Interface) used for local storage, over a network connection. (4 marks)

Save “QUESTION 22” document and upload. (Total: 20 marks)

23. Create a word processor document named “QUESTION 23” and use the document to save solution to questions (a) to (e) below.

- (a) In the context of the Dynamic access control, display Central access policy details. (4 marks)
- (b) Display domain name operations master. (4 marks)
- (c) Using Powershell, query the Domain Name System (DNS) to acquire domain name and IP address mapping information for www.google.com. (4 marks)
- (d) Display system device drivers for the domain. (4 marks)
- (e) Disk cleanup is a maintenance program included in Microsoft Windows that removes unnecessary files from a computer's hard drive. Display the amount of disk you are likely to gain? (4 marks)

Save “QUESTION 23” document and upload.

(Total: 20 marks)



DIPLOMA IN COMPUTER NETWORKS AND SYSTEMS ADMINISTRATION (DCNSA)

LEVEL II

NETWORK OPERATING SYSTEMS

MONDAY: 22 April 2024. Afternoon Paper.

Time Allowed: 3 hours.

Answer ALL questions. This paper has two sections. SECTION I has twenty (20) short response questions. Each question is allocated two (2) marks. SECTION II has three (3) practical questions of sixty (60) marks. Marks allocated to each question are shown at the end of the question.

Required Resources:

- **Windows Server 2016/2019/2022 image**
- **Oracle Virtual box**
- **Linux/Windows computer**

SECTION I (40 MARKS)

1. The role responsible for centralising the management of identity and access in Windows Server is known as: (2 marks)
2. What is the term used to describe the middle tier of a three-tier client-server architecture? (2 marks)
3. What is the name of a network operating system that maintains a centralised database of user accounts, group memberships and networked devices, making administration and resource access easier? (2 marks)
4. A type of Network Operating System (NOS) where in the network is controlled centrally is referred to as: (2 marks)
5. Write down the Windows server role which is responsible for providing certificate services including digital certificate creation and maintenance. (2 marks)
6. State the hierarchical directory structure that allows logical and structured approach to store and retrieve information with the root directory and subdirectories branching out from it. (2 marks)
7. State the name of the command used to prepare a file system for usage on a Windows operating system-based storage medium, such as a USB drive, hard disk or other storage device. (2 marks)
8. During booting, the primary partition containing the operating system and marked as active is referred to as: (2 marks)
9. In the context of Network Operating system, how many primary partitions exists in a conventional Master Boot Record (MBR)? (2 marks)
10. During installation, the component that controls how the underlying hardware and the way Network Operating system communicates is referred to as: (2 marks)
11. What is the name given to installation technique that enables the Network operating system to be installed simultaneously on several computers by the administrator from a single location? (2 marks)
12. A feature in network operating system that allows administrators to define and manage system settings for users and computers within an Active Directory environment is known as: (2 marks)

13. Which configuration setting present in many operating systems governs how the graphical user interface (GUI) looks and functions? (2 marks)
14. Which feature of Active Directory Certificate Services (ADCS) allows non-Windows devices like routers, switches and network appliances to get digital certificates for secure network communication? (2 marks)
15. What should be considered while selecting a network operating system in terms of compatibility? (2 marks)
16. What is the term used to describe a network's ability to prioritise particular types of traffic, ensuring that key applications receive the resources they require while being unaffected by non-essential traffic? (2 marks)
17. A security component in a network operating system environment designed to protect a network by monitoring and controlling incoming and outgoing traffic is known as: (2 marks)
18. The process of dividing a disk into sectors that the disk controller can read and write, before a disk can store data is known as: (2 marks)
19. What is the term used to describe a logical grouping of network objects like people, computers and devices that share a common directory database? (2 marks)
20. Which type of networking technology allows sites from two networking operating systems to connect securely and encrypted through the internet? (2 marks)

SECTION II (60 MARKS)

Create a word processing document named “Question 21” and use it to save your answers to questions (a) to (f) below.

21. In a network context, a file server is a type of server role that is in charge of organising, controlling and granting access to files and folders.
 - (a) Configure file services as a server role. (4 marks)
 - (b) Enable group policy management feature. (2 marks)
 - (c) Display the disk, volume and storage pool. (2 marks)
 - (d) Display Windows Update Services (WSUS) Content Properties. (2 marks)
 - (e) Using WSUS display the performance alert threshold for CPU usage and memory. (6 marks)
 - (f) Using system configuration tool, enable Microsoft iSCSI target server service. (4 marks)

Save “Question 21” document and upload.

(Total: 20 marks)

22. Create a word processing document named “Question 22” and use it to save your answers to questions (a) to (e) below.

Using local security policy settings of your server manager enable the following:

- (a) Limit with default settings of local account use of blank passwords to console logon only. (3 marks)
- (b) Enable Require domain controller authentication to unlock workstation. (3 marks)
- (c) Enable temporary state of networks that are in the process of being identified to private. (4 marks)
- (d) State the number logon attempts that causes a user account to be locked out to be 3. (4 marks)
- (e) Configure the firewall to be in a position to block inbound connection and allow outbound connections. (6 marks)

Save “Question 22” document and upload.

(Total: 20 marks)

23. Create a word processing document named “Question 23” and use it to save your answers to questions (a) to (e) below.

PowerShell is a cross-platform task automation system consisting of a command-line shell, a scripting language and a configuration management framework. Use PowerShell to perform the following:

- (a) Use appropriate command utility to display network connection profiles on the system. (4 marks)
- (b) Use appropriate command utility to retrieve information about IP addresses assigned to network Interfaces. (4 marks)
- (c) Use appropriate command utility to display retrieves DNS server addresses configured on the system. (4 marks)
- (d) Use appropriate command utility to retrieve information about the firewall profiles on the system. (4 marks)
- (e) Use appropriate command utility to retrieve information about active TCP connections on the system. (4 marks)

Save “Question 23” document and upload.

(Total: 20 marks)



DIPLOMA IN COMPUTER NETWORKS AND SYSTEMS ADMINISTRATION (DCNSA)

LEVEL II

NETWORK OPERATING SYSTEMS

MONDAY: 4 December 2023. Afternoon Paper.

Time Allowed: 3 hours.

Answer ALL questions. This paper has two sections. SECTION I has twenty (20) short response questions. Each question is allocated two (2) marks. SECTION II has three (3) practical questions of sixty (60) marks. Marks allocated to each question are shown at the end of the question.

Required Resources:

- Windows Server 2016/2019/2022 image
- Oracle Virtual box
- Linux/Windows computer

SECTION I (40 MARKS)

1. State the types of drives appropriate in a network operating system environment because of their speed, dependability, durability and energy efficiency for applications demanding high-speed access, decreased latency and enhanced reliability: (2 marks)
2. State the peer-to-peer (P2P) network feature which ensures that users manage their own resources, determine which resources to share and regulates who gets access to their resources. (2 marks)
3. The network operating system utility primarily used to check the integrity of a storage device's file system is known as: (2 marks)
4. The type of network operating system that lets users share network resources saved in a common, accessible location and where all devices are treated equally in terms of functionality is known as: (2 marks)
5. What is the name of the feature that improves the security of system limiting application software to standard user privileges until an administrator authorises an increase or elevation. (2 marks)
6. The process of installing and configuring software on a computer or device without the assistance of a graphical user interface (GUI), physical monitor, keyboard and mouse is known as: (2 marks)
7. State the type feature of network operating system that allows users to collaborate and work together more efficiently and also helps to reduce cost by allowing multiple users to share expensive resources. (2 marks)
8. State the policy type that allows Active Directory to guard against brute force attacks by blocking an account after a certain number of failed login attempts? (2 marks)
9. What are the lightweight commands that perform specific actions or operations within the PowerShell environment? (2 marks)
10. When using Active Directory, state the containers that are used to represent an organisation's hierarchical structure, such as departments, teams or geographical locations. (2 marks)
11. A distributed data repository with a subset of properties for all objects in the forest is referred to as: (2 marks)

12. Which computer configuration allows you to install and operate numerous operating systems on a single computer or device and is beneficial for a variety of tasks such as testing alternative operating systems, running older software or separating work and personal environments? (2 marks)

13. A directory that contains the files required to install an operating system on a computer over the network is known as: (2 marks)

14. In the event that something goes wrong during the installation or upgrade process, which method of a software installation is utilised to provide an organised and documented plan for reverting to the prior state or version of a system? (2 marks)

15. In network operating systems and settings such as Active Directory, which security model is utilised to implement strict access control restrictions based on security labels and clearances? (2 marks)

16. To enable certain network tasks and user authentication, what is the name of the network operating system that normally provides such features like web servers, email servers and Active Directory? (2 marks)

17. Which software applications and utilities are used to assist network administrators and IT professionals in ensuring that networks run smoothly, provide a positive user experience and quickly discover and resolve issues? (2 marks)

18. Which users in a network operating system often refer to individuals or accounts having greater control and access to various resources, configurations and settings than normal or standard users? (2 marks)

19. State the command utility which is used to join a machine to a domain and is specifically built for administering Active Directory domains and trusts. (2 marks)

20. The process of enhancing a server's performance, capacity and capabilities in a computer network or data center is referred to as: (2 marks)

SECTION II (60 MARKS)

Required Resources:

- **Windows server 2016/2019/2022 Image**
- **Oracle Virtual box**
- **Linux/Windows computer**

21. Create a word processing document named “Firewall” and use it to save your answers to questions (a) to (e) below:

Proper configuration of firewall is crucial for securing network operating system and controlling traffic based on an organisation's needs and security policies.

(a) Open windows defender firewall with advanced security settings and display the following active Firewall Rules. (2 marks)

(b) Customise the outbound rule for email and account properties on local area network and remote access only. (4 marks)

(c) Allow edge traversal for windows remote management (HTTP-In) properties. (4 marks)

(d) Create a connection Rule named LAN - Authentication to Authenticate your computer to the gateway with appropriate Certificate Authority? (6 marks)

(e) Customise the logging settings for domain profile to allow dropped packets and successful connections. (4 marks)

Save “Firewall” document and upload.

(Total: 20 marks)

22. Create a word processing document named “Group policy” and use it to save your answers to questions (a) to (d) below:

Group Policy allows a system administrator to centrally manage and apply various settings and preferences to user and computer objects in Active Directory domain.

- (a) Configure the network operating system to automatically connect to suggested open hotspot, network shared by contacts and to hotspot offering paid services. (4 marks)
- (b) Configure the network operating system to let applications access cellular data. (4 marks)
- (c) Open policy-based quality of service and enable Inbound TCP throughput to maximum. (6 marks)
- (d) Configure user permissions to allow users to change the network name, location and icon on a connected network. (6 marks)

Save “Group policy” document and upload. **(Total: 20 marks)**

23. Create a word processing-document named “NPAS” and use it to save your answers to questions (a) to (e) below.

Network policy and access services (NPAS) plays a crucial role in managing network access and enforcing network policies within your organisation's infrastructure.

- (a) Open server manager in your network operating system and install Network policy and Access Services. (6 marks)
- (b) Configure NPAS to log accounting data to a local text file on a local computer. (4 marks)
- (c) Within NPAS, display Network Interface Card teaming for the server. (4 marks)
- (d) Display Network operating system server logs in relation to Network policy and access services. (4 marks)
- (e) Display the way a user can shutdown a server from NPAS. (2 marks)

Save “Network policy” document and upload. **(Total: 20 marks)**

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DIPLOMA IN COMPUTER NETWORKS AND SYSTEMS ADMINISTRATION (DCNSA)

LEVEL II

NETWORK OPERATING SYSTEMS

MONDAY: 21 August 2023. Afternoon Paper.

Time Allowed: 3 hours.

Answer ALL questions. This paper has two sections. SECTION I has twenty (20) short response questions. Each question is allocated two (2) marks. SECTION II has three (3) practical questions of sixty (60) marks. Marks allocated to each question are shown at the end of the question.

Required Resources:

- Windows Server 2016/2019/2022 image
- Oracle Virtual box
- Linux/Windows computer

SECTION I (40 MARKS)

1. The network operating system feature that allows the network administrator to configure the server to assign IP addresses to clients on the network is called _____ . (2 marks)
2. What is the name of a small program responsible for locating and loading the network operating system? _____ (2 marks)
3. The type of network operating system that provides users with access to resources through a server is called _____ . (2 marks)
4. What is the name of a network operating system feature that improves the security of system limiting application software to standard user privileges until an administrator authorises an increase or elevation? _____ (2 marks)
5. Active Directory (AD) groups simplify the administration of user accounts or computers in different AD domains by collating them and assigning ubiquitous access rights. How many types of groups are available in Active Directory? _____ (2 marks)
6. The active directory service that keeps track of domain members, verifies their credentials and establishes their access privileges is called? _____ (2 marks)
7. What is the name of an image of the system configuration and settings that helps in restoring the system to an earlier date when the system was running perfectly? _____ (2 marks)
8. Rana, a newly hired intern at an IT consulting company logs into Active Directory on a workstation and then discovers user home directory does not redirect to a network share on a file server. State the command which could be used to verify the group policy settings? _____ (2 marks)
9. A network technician was preparing to install a Network Operating System (NOS) in a workstation. The process that prepares a file system in a partition for files to be stored is known as _____ . (2 marks)
10. The activity that determines the hardware that servers require is referred to as _____ . (2 marks)
11. State the term that describes the type of installation used to install a network operating system on a brand new server. _____ (2 marks)

12. The process of dividing a disk into one or more regions to ensure better data organisation is called _____.
(2 marks)

13. A network security device that monitors, filters incoming, and outgoing network traffic based on an organisation's previously established security policies is called _____.
(2 marks)

14. The network operating that distributes traffic across several servers by using the TCP/IP networking protocol is referred to as _____.
(2 marks)

15. The term that best describes the hardware and software that enables network connectivity and communication between users, devices and applications is called _____.
(2 marks)

16. An object-oriented automation engine and scripting language with an interactive command-line shell that was developed to help IT professionals configure systems and automate network administrative tasks is known as _____.
(2 marks)

17. Name the term that describes the digital ecosystem that allows devices and users to communicate and share data in a network.
(2 marks)

18. What is the name given to separate form of volume management that allows volumes to have noncontiguous extents on one or more physical disks?
(2 marks)

19. The use of unique biological features for digital authentication and access control is known as _____.
(2 marks)

20. The universal tool used to reboot or repair a system or boot a live system from a USB is referred to as _____.
(2 marks)

SECTION II (60 MARKS)

INSTRUCTIONS

Required Resources:

- Windows server 2016/2019/2022 Image
- Oracle Virtual box
- Linux/Windows computer

21. Create a word processing document named "Task manager" and use it to save your answers to questions (a) to (d) below:

Task Manager provides information about computer performance and running software such as processes, CPU and GPU load, commit charge, I/O details, logged-in users, and Windows services.

Using task manager of the network operating system perform the following:

(a) Open performance tab and display the following:

- (i) CPU Utilisation of the server
- (ii) Memory Usage
- (iii) Ethernet Throughput

(b) Open Resource monitor and display the current TCP connections with listening ports. (6 marks)

(c) Display the user of the system with the running process. (4 marks)

(d) Display process ID with the status. (4 marks)

Save "Task manager" document and upload.

(Total: 20 marks)

22. Create a word processing document named “Environment variable” and use it to save your answers to questions (a) to (d) below.

Use the network operating system to display the following:

- (a) The environment variables for your Network operating system. (6 marks)
- (b) The window for adjusting the settings for processor scheduling to allocate resources to programs. (6 marks)
- (c) Active directory site and services console. (4 marks)
- (d) Active directory users and computers console document. (4 marks)

Save “Environment variable” and upload.

(Total: 20 marks)

23. Create a word processing document known as “Quota Management” and use it to save your answers to questions (a) to (e) below.

Using the network operating system perform the following:

- (a) Display procedure for compressing drive to save disk space of your Network operating system. (4 marks)
- (b) Display tools for error checking and Optimizing/Defragmenting the drive. (4 marks)
- (c) Enable Quota Management for the disk. (4 marks)
- (d) Display Windows Management Instrumentation control properties for security. (4 marks)
- (e) Display the window for turning on Active Directory Lightweight Directory Services. (4 marks)

Save “Quota Management” document and upload.

(Total: 20 marks)

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DIPLOMA IN COMPUTER NETWORKS AND SYSTEMS ADMINISTRATION (DCNSA)

LEVEL II

NETWORK OPERATING SYSTEMS

MONDAY: 24 April 2023. Afternoon Paper.

Time Allowed: 3 hours.

Answer ALL questions. This paper has two sections. SECTION I has twenty (20) short response questions. Each question is allocated two (2) marks. SECTION II has three (3) practical questions of sixty (60) marks. Marks allocated to each question are shown at the end of the question.

Required Resources:

- Windows Server 2016/2019/2022 image
- Oracle Virtual box
- Linux/Windows computer

SECTION I (40 MARKS)

1. What is the name of the default terminal server application in Windows Server? (2 marks)
2. The task performed by the Central Processing Unit that decides the way and order in which processes should be executed is known as: (2 marks)
3. The name of the group that provides users with access to network resources and to assign permissions to control access to these resources is known as: (2 marks)
4. Raid ensures data is copied onto multiple drives for faster throughput, error correction, fault tolerance and improved mean time between failures. Which type of RAID can be used to configure two drives for maximum performance? (2 marks)
5. Multitasking operating system (OS) can work on more than one task at a time by switching between the tasks very rapidly. Which part of an operating system is the active program running but not visible to the user? (2 marks)
6. A cross-platform command-line shell designed for system administration such as automation and configuration is known as: (2 marks)
7. A level of security where only digitally signed programs from trusted publishers are allowed to run, and all user-installed programs are blocked is known as: (2 marks)
8. Which is the service that is used to transfer files between computers on a network? (2 marks)
9. What is the name given to a client-server interface that allows computers in a network to be booted from the server on the network before deploying the obtained PC image in local and remote offices? (2 marks)
10. Kennedy wishes to install an operating system into his computer and maintain his files. Which type of operating system installation preserves system settings, personal files, and applications from an older operating system version? (2 marks)
11. What is the name of the logical drive that is created to create more than one physical part of the same size? (2 marks)
12. Which component of a network operating system uses both hardware and software to enable a computer to compensate for physical memory shortages, temporarily transferring data from random access memory (RAM) to disk storage? (2 marks)

13. Which specification of a software program is used by operating system to communicate and provide a lightweight BIOS alternative that uses only the information needed to launch the OS boot process? (2 marks)

14. Which is the unique identifiers assigned to each user or group in Windows Server that controls access to resources on the network? (2 marks)

15. A tool used by administrators in a network operating system to examine the way programs running on their computers affect performance in real time is known as: (2 marks)

16. What is the name given to a logical construct used by Active Directory Domain Services (ADDS) to group one or more domains? (2 marks)

17. The process of creating multiple virtual instances of an operating system on a single physical server is called: (2 marks)

18. What is the name given to the process of removing a user sensitive data a set of data in an active directory by randomising data using various data shuffling and manipulation techniques? (2 marks)

19. Boot Configuration Data (BCD) files provide a store that is used to describe boot applications and boot application settings. Which command line tool is used to display and modify the boot configuration datastore? (2 marks)

20. Which storage mechanism is used to retrieve processes from the secondary storage into the main memory? (2 marks)

SECTION II (60 MARKS)

INSTRUCTIONS

Install Oracle virtual box and Window server image to your computer and answer the following questions:

Required Resources:

- Windows server 2016/2019/2022 Image
- Oracle Virtual box
- Linux/Windows computer

21. Create a word processing document named “Question 21” and use it to save your answers to questions (a) to (e).

A web server is software and hardware that uses HTTP (Hypertext Transfer Protocol) and other protocols to respond to client requests made over the World Wide Web.

(a) Add appropriate web server. Capture a screen shot. (6 marks)

(b) Open a web browser and type 127.0.0.1 at the address bar. Capture the image. (2 marks)

(c) Locate the wwwroot file and capture the screen shot of its contents: (2 marks)

(d) In the folder wwwroot, create a file index.html and key in the following text. Capture an appropriate screen shot: (5 marks)

(e) Reopen a web browser and type 127.0.0.1 at the address bar. Capture the screen shot: (5 marks)

Upload “Question 21” document.

(Total: 20 marks)

22. Create a word document named “Question 22” and use it to save your answers to questions (a) to (c):

(a) Display the number of processor and maximum memory used by your Network Operating System. Capture the screen shot. (4 marks)

(b) Using appropriate tool activate the following services.

(i) Network connectivity assistant. Capture the screen shot. (3 marks)

(ii) Network connections. Capture a suitable screen shot. (3 marks)

(iii) Network list service. Capture a suitable screen shot. (3 marks)

(iv) Network setup. Capture a suitable screen shot. (3 marks)

(c) Display in-depth record of events related to the system of your Network operating system. Capture the screen shot. (4 marks)

Upload “Question 22” document. **(Total: 20 marks)**

23. Create a word document known as “Question 23” and use it to save your answers to questions (a) to (e).

Kerberos is the default authentication policy used by Network Operating system to authenticate computers and users on a network.

(a) Enable enforcement of user logon restrictions. Capture a screen shot. (4 marks)

(b) Set maximum lifetime for service ticket to 10hrs. Capture a screen shot. (4 marks)

(c) Set maximum lifetime for user ticket to 10hrs. Capture a screen shot. (4 marks)

(d) Set maximum lifetime for user renewal to 7 days. Capture a screen shot. (4 marks)

(e) Set maximum tolerance for computer clock synchronization 5 minutes. Capture a screen shot. (4 marks)

Upload “Question 23” document. **(Total: 20 marks)**

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DIPLOMA IN COMPUTER NETWORKS AND SYSTEMS ADMINISTRATION (DCNSA)

LEVEL II

NETWORK OPERATING SYSTEMS

MONDAY: 5 December 2022. Afternoon Paper.

Time Allowed: 3 hours.

Answer ALL questions. This paper has two sections. SECTION I has twenty (20) short response questions. Each question is allocated two (2) marks. SECTION II has three (3) practical questions of sixty (60) marks. Marks allocated to each question are shown at the end of the question.

Required Resources:

- Windows Server 2016/2019/2022 image
- Oracle Virtual box
- Linux/Windows computer

SECTION I (40 MARKS)

1. An institution has a policy in place to undertake a full backup every Sunday. Every other day of the week, staff members are required to back up only the changes since the last full backup. State the name of the backup type to be used for Thursday. (2 marks)
2. The installation feature in network operating system that provides a minimal environment for running specific server roles such as reduction of the maintenance and management requirements is known as: (2 marks)
3. What is name given to the network operating system tool intended to duplicate, test and deliver new installation based on an established installation? (2 marks)
4. A consortium that has been operational for a good number of years have requested you to setup 10 servers and 20 workstations. Windows deployment services are used whenever a new workstation is setup. Advise on the tool to be used to automate installation with little human interaction. (2 marks)
5. Group policy has been used to manage users and computers in Active Directory Domain Services (AD DS) running on network operating system. State what you would use to view the effect of applied group policy on individual computer. (2 marks)
6. A user account is an identity created for a person in a computer or computing system. You are required to grant a set of users permissions to a specific folder. State the group in which the user accounts should be placed. (2 marks)
7. A computer network for a Law firm contains Active Directory domain named lawfirm.com. The Active Directory Recycle bin is enabled for lawfirm.com. A support technician accidentally deletes a user account named learnedfriend1. You need to restore the learnedfriend1 account. Write down the appropriate tool that should be used. (2 marks)
8. State the command utility that provides management facilities for Active Directory Domain Services (AD DS) and Active Directory Lightweight Directory Services (AD LDS). (2 marks)
9. State the name given to a security feature in Network operating system to prevent unauthorised changes to the operating system. (2 marks)

10. Write down the protocol that uses an arbitrary authentication method, such as certificates, smart cards, or credentials on network operating system. (2 marks)
11. Which settings of a Network operating system (NOS) can be configured on a log file server for data collected to ensure the contents are automatically deleted when the file reaches 100MB in size? (2 marks)
12. An in-depth analysis on a network showed it contained a Hyper-V host named Server1 that hosts 20 virtual machines. You need to view the amount of memory resources and processor resources each virtual machine uses currently. Which tool can be used on the server to view the amount of memory and processor resources used by each of the virtual machine? (2 marks)
13. Which feature that is used to control the types of files users can save and generate notifications when users attempt to save unauthorised files in a network operating system? (2 marks)
14. State the tool that could be used to track all connections to shared resources on a Network operating system? (2 marks)
15. The policy setting which when enabled ensures file access, modification and deletion can be tracked in the event log is referred to as? (2 marks)
16. Indicate the tool in network operating system that can be used by administrators to examine the way system programs are running and their effect on performance. (2 marks)
17. The administrative tool which provides a view of all organisational units, domains and sites across an enterprise is called _____. (2 marks)
18. Which command utility can be used to create Network Access Protection event to trace log files in client computer? (2 marks)
19. What is the name given to the tool used to mount a Network operating system image from Virtual Hard Disk (VHD) file? (2 marks)
20. State the name of the graphical user interface (GUI) tool with scope pane on left used to navigate Active Directory namespace. (2 marks)

SECTION II (60 MARKS)

INSTRUCTIONS

Install Oracle virtual box and Window server image to your computer and answer the following questions:

Required Resources:

- Windows server 2016/2019/2022 Image
- Oracle Virtual box
- Linux/Windows computer

Create a word processing document named “Task Manager” and use it to save your answers to questions (a) to (e).

21. Task manager, which is regarded as a system monitor is very common with the Network operating system. It assists in giving information about computer performance and running software.

Required:

Using task manager of your Network operating system:

- (a) Capture a screenshot of statuses that are running and stopped. (4 marks)
- (b) Display the current CPU utilisation. (3 marks)
- (c) Display the streams of instructions currently running. (3 marks)
- (d) Click on the memory chart and display the following:
 - (i) Total physical memory (MB). (2 marks)
 - (ii) Total available memory. (2 marks)

(e) Click on the Ethernet chart and display the following:

- (i) Link speed. (2 marks)
- (ii) Network Connection. (2 marks)
- (iii) IPv4 address in use. (2 marks)

Capture and save screenshots to show how you have performed the above task.

Upload “Task Manager” document.

(Total: 20 marks)

22. Create a word processing document named “Memory Usage” and use it to save your answers to questions (a) to (e) below:

With the help of task manager, perform the following:

- (a) Click on Memory heading and state the effect exhibited on the columns. (4 marks)
- (b) Display the memory usage to be in percentage values. (4 marks)
- (c) State the way memory usage in Percent values could be useful to a system administrator (2 marks)
- (d) Display list of the usernames which are logged into the system. (4 marks)
- (e) Display the tabs that perform the following:
 - (i) List the processes that are started automatically. (2 marks)
 - (ii) Lists the historical resources usage (2 marks)
 - (iii) Displays process information such as process ID (PID), status, and memory utilisation. (2 marks)

Upload “Memory usage” document.

(Total: 20 marks)

23. Create a word processing document named “Virtual memory” and use it to save answers to questions (a) to (d) below:

Virtual memory is a common technique used in Network operating systems. It is used on both hardware and software to enable a computer compensate for physical memory shortages, temporarily transferring data from random access memory (RAM) to disk storage.

Required:

- (a) List current size of the virtual memory (paging file) used by your network operating system. (4 marks)
- (b) Display the Drive [Volume Label] that contains the paging file. (6 marks)
- (c) Capture a screenshot to illustrate the way you can use Disk Management to create a second partition with at least 2GB. (6 marks)
- (d) Capture a screenshot showing configuration of the virtual memory using the recommended file size in the Initial size (MB) field and file size in the Maximum size (MB) field. (4 marks)

Upload “Virtual memory” document.

(Total: 20 marks)

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DIPLOMA IN COMPUTER NETWORKS AND SYSTEM ADMINISTRATION (DCNSA)

LEVEL II

NETWORK OPERATING SYSTEMS

MONDAY: 1 August 2022. Afternoon paper.

Time Allowed: 3 hours.

This paper has two sections. SECTION I has twenty (20) short response questions. SECTION II has three practical questions of sixty (60) marks. All questions are compulsory. Marks allocated to each question are shown at the end of the question.

SECTION I

1. A _____ is a computer program or device that provides a service to another computer program and its user, also known as the client. (2 marks)
2. _____ Manages the Virtual Machines and provides access to host computer resources . (2 marks)
3. What is the mode of operation where two or more processors in an operating system simultaneously process two or more different portions of the same program? (2 marks)
4. A collection of active directory objects such as users and computers are called a _____? (2 marks)
5. _____ comprises hardware and software, systems and devices, and it enables computing and communication between users, services, applications and processes. (2 marks)
6. A System Administrator was planning to deploy a Nano Server to function as a Hyper-V server for Finance network. Which parameter would you advise to include on the nano server image command line? (2 marks)
7. Virtualisation has become an important tool in network administration. Which advantage of Virtualisation is attributed to deployment of new virtual servers that can be accomplished in hours, rather than the days needed to approve, obtain, and install hardware for a new physical server? (2 marks)
8. _____ enables administrators to manage permissions and access to network resources and stores data as objects. (2 marks)
9. _____ is a collection of policy settings available to define the configuration or behavior of users or Computers. (2 marks)
10. Which of the role provided by a windows server is seen as an inhibiting use of IPV6 in networks? (2 marks)
11. Which command utility in command line interface (CLI) can be used to view computers IP address? (2 marks)
12. _____ is a server computer that responds to security authentication requests such as logging within a Windows domain. (2 marks)
13. A server role is a set of software programs that, when they are installed and properly configured, lets a computer perform a specific function for multiple users or other computers within a network. What server role must be installed on a server in order for it to be considered a domain controller? (2 marks)

14. Windows _____ is setting the appearance of the desktop and apps make it look better and reflect your personal likes. (2 marks)

15. Assuming you have been tasked by your immediate supervisor to create a new user account on Network operating system using the command prompt. Which command would you use? (2 marks)

16. You have recently been hired as administrator for a small pharmaceutical company with four servers. You have one file server named X that runs Windows Server 2016. You have a junior administrator who needs to do backups on this server. You need to ensure that the junior admin can use Windows Server Backup to create a complete backup of X. What should you configure to allow the junior admin to do the backups? (2 marks)

17. _____ is an Active Directory object that represents a replication connection from a source domain controller to a destination domain controller. (2 marks)

18. Which active directory service is responsible for establishing the replication topology and ensuring that all domain controllers are kept up-to-date? (2 marks)

19. _____ is a communication protocol that Microsoft created for providing shared access to files and printers across nodes on a network. (2 marks)

20. Which DOS command would you use to immediately restart a server whose graphical user interface has failed?

SECTION II

21. Windows Server is a group of operating systems that supports enterprise-level management, data storage, applications and communications.

Install oracle virtual box and Window server image to your Linux or windows computer and answer the following questions:

Required Resources

- Windows server 2016/2019/2022 Image
- Oracle Virtual box
- Linux/Windows computer

Create a word processing document named Question 21 and use it to save answers to questions (i) to (v).

- (i) Capture a screenshot displaying server based operating system Dashboard (4 marks)
- (ii) Capture a screenshot displaying local server properties (4 marks)
- (iii) Display Routed Protocol configuration details (4 marks)
- (iv) Capture a screenshot displaying add roles and features wizard (4 marks)
- (v) Configure Role based installation (4 marks)

Upload Question 21.

(Total: 20 marks)

22. Create a word processor document named Question 22 and use it to save answers to questions (i) to (iv) below.

- (i) Capture a screenshot displaying the active directory domain services window configuration. (6 marks)
- (ii) Create user account objects of Active Directory Users using the correct snap-in console (4 marks)
- (iii) Configure server domain name to be "togetherasone" (6 marks)
- (iv) Capture a screenshot restricting logon of users at specific times and days. (4 marks)

Upload Question 22 document.

(Total: 20 marks)

23. Create a word processor document named Question 23 and use it to save answers to questions (i) to (iv) below.
Set the following settings on windows server:

- (i) Enforce password history to 5 times
- (ii) Maximum password age 30 days
- (iii) Minimum password length 5 characters
- (iv) Password complexity requirements:

Disable the following settings:

- Contain at least one character, either uppercase (A - Z), lowercase (a - z)
- a numeric digit (0 to 9)
- non-alphabetic characters such as \$% #).

Upload Question 23.

(Total: 20 marks)

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