CBSE | DEPARTMENT OF SKILL EDUCATION
ELECTRONICS AND HARDWARE (SUBJECT CODE 847)

MARKING SCHEME FOR CLASS XII (Session 2024-2025)

Max. Time: 3 Hours   **Max. Marks: 60**

General Instructions:

1. Please read the instructions carefully.

2. This Question Paper consists of **24 questions** in two sections – Section A & Section B.

3. Section A has Objective type questions whereas Section B contains Subjective type questions.

4. **Out of the given (6 + 18 =) 24 questions, a candidate has to answer (6 + 11 =) 17 questions in the allotted (maximum) time of 3 hours.**

5. All questions of a particular section must be attempted in the correct order.

6. **SECTION A - OBJECTIVE TYPE QUESTIONS (30 MARKS):**

    i. This section has 06 questions.

    ii. There is no negative marking.

    iii. Do as per the instructions given.

    iv. Marks allotted are mentioned against each question/part.

7. **SECTION B – SUBJECTIVE TYPE QUESTIONS (30 MARKS):**

    i. This section contains 18 questions.

    ii. A candidate has to do 11 questions.

    iii. Do as per the instructions given.

    iv. Marks allotted are mentioned against each question/part.

SECTION A: OBJECTIVE TYPE QUESTIONS

Q. 1	Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)	Marks
i.	Answer: True	1
ii.	A) Cell	1
iii.	(c) Send it back to the production line — to be melted	1
iv.	(b) initiative	1
v.	(ii) Neuroticism	1
vi.	narcissists	1
Q. 2	**Answer any 5 out of the given 7 questions (1 x 5 = 5 marks)**	
i.	B. Physical Layer	1
ii.	C. FTP (File Transfer Protocol)	1
iii.	**B. False**. (Walkie-talkie in which message is sent one at a time and messages are sent in both directions)	1
iv.	128 Bit.	1
v.	D. RJ 45	1
vi.	A) Router	1
vii.	Simple Mail Transfer Protocol	1
Q. 3	**Answer any 6 out of the given 7 questions (1 x 5 = 5 marks)**	
i.	a) 1	1
ii.	b) Datacenter Edition	1
iii.	False. GPT-type supports drives larger than 2 TB size.	1
iv.	D) Databases	1
v.	c) Forest	1
vi.	B) Active Directory Users and Computers (ADUC)	1
vii.	**GUID** (Globally Unique Identifier)	1
Q. 4	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	
i.	c) ls	1
ii.	True	1
iii.	(D)4	1
iv.	c) dot(.)	1
v.	Debian, Ubuntu or Mint.	1
vi.	Yes. Linux file system is case-sensitive	1
Q. 5	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	
i.	c) To make a network service unavailable to its intended users	1
ii.	c) To protect against the latest threats and vulnerabilities	1
iii.	A) True.	1
iv.	C. To block unauthorized access to a network	1
v.	Individual	1
vi.	Internet connection firewall	1
Q. 6	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**	
i.	C. 26	1
ii.	The version of ITIL that includes security management as a core aspect is **ITIL v3** (ITIL version 3)	1
iii.	a) True	1
iv.	B. Mean Time to Restore Service (MTRS)	1
v.	KEDB stands for Known Error Database. It is a database or repository within IT Service Management (ITSM) that stores information about known errors in an organization's IT infrastructure or services.	1
vi.	(C) People perspective	1

SECTION B: SUBJECTIVE TYPE QUESTIONS

Q. No.	Questions with Answer	Marks
Answer any 3 out of the given 5 questions on Employability Skills in 20 – 30 words each (2 x 3 = 6 marks)	
Q. 7	Stages of active listening: 1. **Receiving:** It involves listening attentively. 2. **Understanding:** It is an informed agreement about something or someone. 3. **Remembering:** It refers to the retrieval or recall of some information from the past. 4. **Evaluating:** It is about judging the value, quantity, importance and amount of something or someone. 5. **Responding:** It is about saying or doing something as a response to something that has been said or done.	2
Q. 8	**Intrinsic motivation** comes from within oneself. It's when you do something because you find it personally rewarding or enjoyable. For example, you might study a subject because you love learning about it. **Extrinsic motivation**, on the other hand, comes from outside factors like rewards or punishments. It's when you do something to earn a prize, avoid trouble, or gain recognition. An example is studying hard for a good grade.	2
Q. 9	A spreadsheet function is a predefined formula that performs a specific calculation. Functions simplify complex calculations, such as SUM for adding numbers or AVERAGE for calculating the average of a range of values.	2
Q. 10	Personal barriers to entrepreneurship include fear of failure, lack of self-confidence, financial constraints, and limited knowledge or skills. Fear of taking risks and uncertainty about success can hold individuals back from starting their own businesses. Additionally, not having enough money or access to capital, as well as feeling inadequate in business management or technical expertise, can pose significant challenges.	2
Q. 11	In the renewable energy sector, two green jobs could be "Solar Photovoltaic (PV) Installer" and "Wind Turbine Technician". These jobs involve installing and maintaining renewable energy systems like solar panels and wind turbines, which generate clean energy from natural resources.	2
Answer any 3 out of the given 5 questions in 20 – 30 words each (2 x 3 = 6 marks)	
Q. 12	A Peer-to-Peer (P2P) network is a decentralized communication model where each participant (peer) has equal status, sharing resources directly without a central server. Peers act as both clients and servers, enabling efficient resource utilization and scalability while reducing single points of failure.	2
Q. 13	**The basic requirements are −** ▪ CPU socket minimum 1.4 GHz (64-bit processor) or faster for single core and Microsoft recommends 3.1 GHz (64-bit processor) or faster multi-core. ▪ RAM minimum is 2GB, but Microsoft recommends 8GB. ▪ 160 GB hard disk with a 60 GB system partition space in your hard disk.	2
Q. 14	Advantages of Linux server over Windows server include: superior stability, security, and cost-effectiveness. Linux servers are known for their robust performance in handling server workloads without licensing fees, making them ideal for businesses seeking reliable and economical solutions.	2
Q. 15	Phishing is a type of social engineering attack often used to steal user data, including login credentials and credit card numbers. It occurs when an attacker, masquerading as a trusted entity, dupes a victim into opening an email, instant message, or text message.	2
Q. 16	Internal customers are individuals or departments within an organization who rely on services or products from other departments. For example, HR depends on IT for software support. External customers are individuals or entities outside the organization who purchase goods or services, like consumers buying products from a retail store.	2

	Answer any 2 out of the given 3 questions in 30– 50 words each (3 x 2 = 6 marks)	
Q. 17	MAC address is defined as the identification number for the hardware. In general, the network interface cards (NIC) of each computer such as Wi-Fi Card, Bluetooth, or Ethernet Card has an unchangeable MAC address embedded by the vendor at the time of manufacturing. To get the MAC address using the Command Prompt (CMD) in Windows, you can use the following command: ▪ Open the Command Prompt (search for "cmd" in the Start menu and press "Enter". ▪ Type "ipconfig /all" and press Enter. Look for the "Physical Address" entry under the network adapter you are interested in. This is the MAC address.	**3**
Q. 18	A Critical Success Factor (CSF) is a crucial element or condition required for an organization or project to achieve its mission. CSFs are key areas where performance must be excellent to ensure that goals are met. They are specific to an organization's industry, goals, and environment, and they often represent the few key areas where things must go right for the business or project to be successful. Identifying and focusing on CSFs helps prioritize efforts and resources effectively. The Four Main Types of Critical Success Factors--- 1. Industry factors 2. Environmental factors 3. Strategic factors 4. Temporal factors	**3**
Q. 19	**Install Firewalls**: Protect network perimeters to prevent unauthorized access. **Use Strong Passwords**: Implement complex passwords and change them regularly. **Update Software**: Regularly update and patch all software and firmware. **Enable Encryption**: Encrypt data both in transit and at rest. **Implement Access Controls**: Restrict access to sensitive information and systems. **Monitor Network Traffic**: Continuously monitor for suspicious activity. **Educate Users**: Train employees on security best practices and phishing awareness.	**3**
	Answer any 3 out of the given 5 questions in 50– 80 words each (4 x 3 = 12 marks)	
Q. 20	A network device is a hardware component used to connect computers and other electronic devices within a network, enabling communication and data exchange. **Router**: A router directs data packets between different networks, such as between a home network and the internet. It determines the best path for data to travel. **Switch**: A switch connects multiple devices within the same network, like computers in an office. It uses MAC addresses to forward data to the correct device. **Firewall**: A firewall monitors and controls incoming and outgoing network traffic based on security rules. It acts as a barrier between a trusted internal network and untrusted external networks, such as the internet, to prevent unauthorized access.	**4**
Q. 21	**Benefits of Domain Controller** 1) Centralized user management 2) Enables resource sharing for files andprinters 3) Federated configuration for redundancy(FSMO) 4) Can be distributed and replicated acrosslarge networks 5) Encryption of user data 6) Can be hardened and locked down for improved security. **Limitations of Domain Controller** 1) Target for cyberattack 2) Potential to be hacked 3) Users and OS must be maintained to bestable, secure and up-to-date 4) Network is dependent on DC uptime 5) Hardware/software requirements	**4**
Q. 22	Linux file system has a hierarchal file structure as it contains a root directory and its subdirectories. All other directories can be accessed from the root directory. A partition usually has only one file system, but it may have more than one file system. A file system is designed in a way that it can manage and provide space for non-volatile storage data. All file systems require a namespace that is a naming and organizational methodology. The namespace defines the naming process, length of	**4**

	the file name, or a subset of characters that can be used for the file name. It also defines the logical structure of files on a memory segment, such as the use of directories for organizing the specific files. Once a namespace is described, a Metadata description must be defined for that particular file	
Q. 23	The most common benefits of IT Service Management (ITSM) include: **Improved Efficiency:** Streamlines IT processes and workflows, reducing redundancy and manual effort, leading to faster service delivery. **Enhanced Service Quality:** Ensures consistent and reliable IT services, improving user satisfaction and reducing downtime. **Better Alignment with Business Goals:** Aligns IT services with business objectives, ensuring that IT supports and enhances business operations and strategy. **Cost Reduction:** Optimizes resource use and reduces operational costs through better process management and automation. **Increased Visibility and Control:** Provides detailed insights into IT operations, enabling better monitoring, reporting, and management of services. **Risk Management:** Enhances security and compliance by implementing standardized processes and practices, reducing the risk of breaches and non-compliance. **Continuous Improvement:** Promotes ongoing assessment and improvement of IT services and processes, fostering innovation and adaptability in response to changing business needs.	**4**
Q. 24	The Information Technology Infrastructure Library (ITIL) provides a framework for IT service management (ITSM) that aligns IT services with business needs. Key requirements of ITIL for businesses include: 1. Service Strategy: Develop a clear IT service strategy aligned with business goals. This involves understanding customer needs, market spaces, and formulating policies to manage services. 2. Service Design: Create IT services and processes that meet business requirements. This includes designing services, service management systems, and service metrics. 3. Service Transition: Ensure the smooth deployment of IT services. This involves change management, release and deployment management, and service testing to mitigate risks. 4. Service Operation: Manage IT services effectively on a day-to-day basis. Key practices include incident management, problem management, and access management to ensure stability and service quality. **5.** Continual Service Improvement: Regularly assess and improve IT services and processes to ensure they remain aligned with business objectives. This involves analyzing performance data and implementing enhancements.	**4**