

# CBSE|DEPARTMENT OF SKILL EDUCATION

## ELECTRONICS TECHNOLOGY (SUBJECT CODE - 820)

Blue-print for Sample Question Paper for Class XII (Session 2024 - 2025)

Max. Time: 3 Hours

Max. Marks: 60

### PART A - EMPLOYABILITY SKILLS (10 MARKS):

UNIT NO.	NAME OF THE UNIT	OBJECTIVE TYPE QUESTIONS	SHORT ANSWER TYPE QUESTIONS	TOTAL QUESTIONS
		1 MARK EACH	2 MARKS EACH	
1	Communication Skills – IV	1	1	2
2	Self-Management Skills – IV	2	1	3
3	ICT Skills – IV	1	1	2
4	Entrepreneurial Skills – IV	1	1	2
5	Green Skills- IV	1	1	2
<b>TOTAL QUESTIONS</b>		<b>6</b>	<b>5</b>	<b>11</b>
<b>NO. OF QUESTIONS TO BE ANSWERED</b>		<b>Any 4</b>	<b>Any 3</b>	<b>07</b>
<b>TOTAL MARKS</b>		<b>1 x 4 = 4</b>	<b>2 x 3 = 6</b>	<b>10 MARKS</b>

### PART B - SUBJECT-SPECIFIC SKILLS (50 MARKS):

UNIT NO.	NAME OF THE UNIT	OBJECTIVE TYPE QUESTIONS	SHORT ANS. TYPE QUES.- I	SHORT ANS. TYPE QUES.- II	DESCRIPTIVE/ LONG ANS. TYPE QUESTIONS	TOTAL QUESTIONS
		1 MARK EACH	2 MARKS EACH	3 MARKS EACH	4 MARKS EACH	
1	Basic Occupational Safety and Precautions	07	01	-	01	09
2	Microphones and Loudspeakers	07	01	01	01	10
3	Recorders	06	01	01	01	09
4	TV System	06	01	01	01	09
5	Modern Appliances	06	01	-	01	08
<b>TOTAL QUESTIONS</b>		<b>32</b>	<b>05</b>	<b>03</b>	<b>05</b>	<b>45</b>
<b>NO. OF QUESTIONS TO BE ANSWERED</b>		<b>Any 26</b>	<b>Any 3</b>	<b>Any 2</b>	<b>Any 3</b>	<b>34</b>
<b>TOTAL MARKS</b>		<b>1 x 26 = 26</b>	<b>2 x 3 = 6</b>	<b>3 x 2 = 6</b>	<b>4 x 3 = 12</b>	<b>50 MARKS</b>

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## ELECTRONICS TECHNOLOGY (SUBJECT CODE - 820)

Sample Question Paper 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 38 questions. A candidate has to do 30 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**

<b>Q.1</b>	<b>Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)</b>	
<b>i.</b>	What type of communication breakdown occurs when the receiver interprets the message differently from what the sender intended? (a) Encoding failure (b) Semantic noise (c) Psychological noise (d) Channel interference	<b>1</b>
<b>ii.</b>	Grit is the combination of passion and perseverance. Which psychologist is most associated with this concept? (a) Daniel Goleman (b) Angela Duckworth (c) Carol Dweck (d) Sigmund Freud	<b>1</b>
<b>iii.</b>	Phishing attacks aim to steal personal information by: (a) Physically accessing a device (b) Sending fraudulent emails or messages pretending to be a trustworthy entity (c) Installing malware through software updates (d) Cracking passwords using brute force	<b>1</b>
<b>iv.</b>	Bootstrapping in entrepreneurship refers to: (a) Securing government funding (b) Using personal savings and reinvesting profits to grow the business (c) Issuing company stocks for capital (d) Raising venture capital	<b>1</b>
<b>v.</b>	Which of the following is a key characteristic of sustainable development? (a) Maximizing natural resource consumption (b) Meeting present needs without compromising future generations' ability to meet their own needs (c) Increasing industrial production (d) Reducing investment in green technologies	<b>1</b>
<b>vi.</b>	Which of the following best defines resilience in the context of self-management? (a) Avoiding challenges altogether (b) Quickly recovering from setbacks and adapting to change (c) Controlling others' emotions (d) Ignoring stressful situations	<b>1</b>
<b>Q.2</b>	<b>Answer any 5 out of the given 7 questions (1 x 5 = 5 marks)</b>	
<b>i.</b>	How does a dynamic microphone convert sound into electrical signals? (a) By varying the capacitance (b) By using a vibrating diaphragm and electromagnetic induction (c) By converting sound waves directly into digital signals (d) By amplifying the sound waves	<b>1</b>

<b>ii.</b>	Which type of recorder uses magnetic tape as a recording medium? (a) Digital audio recorder (b) Compact disc recorder (c) Tape recorder (d) Vinyl record player	<b>1</b>
<b>iii.</b>	What is the advantage of digital audio recorders over analog tape recorders? (a) Higher fidelity and clearer sound reproduction (b) Lower initial cost (c) Longer recording times (d) Compatibility with older audio systems	<b>1</b>
<b>iv.</b>	What is the function of a cathode ray tube (CRT) in a television set? (a) To amplify sound signals (b) To convert digital signals to analog (c) To display images on the screen (d) To store television programs	<b>1</b>
<b>v.</b>	Which component in a TV system converts incoming signals into visible images? (a) Antenna (b) Tuner (c) Display panel (d) Video processor	<b>1</b>
<b>vi.</b>	How does an inverter air conditioner differ from a conventional air conditioner? (a) It consumes more energy (b) It operates at a fixed speed (c) It adjusts compressor speed based on cooling requirements (d) It uses a different refrigerant	<b>1</b>
<b>vii.</b>	What is a smart appliance? (a) An appliance that can communicate with other devices via the internet (b) An appliance that does not require electricity (c) An appliance that requires manual operation (d) An appliance that uses only renewable energy sources	<b>1</b>
<b>Q.3</b>	<b>Answer any 6 out of the given 7 questions (1 x 6 = 6 marks)</b>	
<b>i.</b>	Which of the following is an example of Personal Protective Equipment (PPE) used in electronics workshops? (a) Safety gloves (b) Safety goggles (c) Safety boots (d) All of the above	<b>1</b>
<b>ii.</b>	What should be done before working on electronic equipment connected to a power source? (a) Wear rubber gloves (b) Ensure the equipment is turned off and unplugged (c) Increase the voltage gradually (d) Use wet hands for better conductivity	<b>1</b>

<b>iii.</b>	Why is it important to discharge capacitors before handling electronic circuits? (a) To prevent damage to the components (b) To increase circuit efficiency (c) To reduce electromagnetic interference (d) To improve soldering quality	<b>1</b>
<b>iv.</b>	What does ESD stand for in relation to electronic components? (a) Electronic System Design (b) Electrostatic Discharge (c) Electrical Safety Device (d) Embedded System Development	<b>1</b>
<b>v.</b>	Which type of fire extinguisher is suitable for electrical fires? (a) Water extinguisher (b) Foam extinguisher (c) CO2 extinguisher (d) Powder extinguisher	<b>1</b>
<b>vi.</b>	Which microphone type is best suited for recording vocals in a studio environment? (a) Dynamic microphone (b) Condenser microphone (c) Ribbon microphone (d) Carbon microphone	<b>1</b>
<b>vii.</b>	How does a condenser microphone convert sound into electrical signals? (a) By using a vibrating diaphragm and electromagnetic induction (b) By varying the capacitance (c) By converting sound waves directly into digital signals (d) By amplifying the sound waves	<b>1</b>
<b>Q.4</b>	<b>Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)</b>	
<b>i.</b>	What is the purpose of a pop filter in microphone applications? (a) To reduce background noise (b) To enhance bass frequencies (c) To prevent wind and breath noise (d) To improve signal clarity	<b>1</b>
<b>ii.</b>	Which component in a loudspeaker converts electrical signals into sound waves? (a) Diaphragm (b) Magnet (c) Voice coil (d) Enclosure	<b>1</b>
<b>iii.</b>	Which audio recording format offers the highest fidelity and dynamic range? (a) WAV (b) MP3 (c) AAC (d) OGG	<b>1</b>

<b>iv.</b>	In digital audio recorders, what does ADC stand for? (a) Analog to Digital Converter (b) Audio Data Compression (c) Advanced Digital Coding (d) Automatic Data Capture	<b>1</b>
<b>v.</b>	What is the purpose of a transport mechanism in tape recorders? (a) To rewind the tape (b) To fast forward the tape (c) To play and record audio (d) To control tape speed	<b>1</b>
<b>vi.</b>	Which component in a TV system decodes broadcast signals into audio and video? (a) Antenna (b) Tuner (c) Display panel (d) Video processor	<b>1</b>
<b>Q.5</b>	<b>Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)</b>	
<b>i.</b>	What is the purpose of a scaler in a modern television? (a) To enhance audio clarity (b) To improve video resolution (c) To control brightness and contrast (d) To synchronize audio and video signals	<b>1</b>
<b>ii.</b>	Which TV display technology offers deeper blacks and wider viewing angles compared to LCD? (a) Plasma (b) CRT (c) LED (d) OLED	<b>1</b>
<b>iii.</b>	What is the primary advantage of inverter technology in modern air conditioners? (a) Lower initial cost (b) Higher energy consumption (c) Variable speed operation (d) Compatibility with older homes	<b>1</b>
<b>iv.</b>	How does a smart refrigerator contribute to energy efficiency? (a) By automatically adjusting temperature settings (b) By using a larger compressor (c) By increasing storage capacity (d) By using less efficient cooling technology	<b>1</b>
<b>v.</b>	Which of the following appliances is commonly integrated with IoT technology for remote control and monitoring? (a) Washing machine (b) Electric kettle (c) Toaster (d) Blender	<b>1</b>

<b>vi.</b>	What is the primary function of a diode in an electronic circuit? a) Amplification b) Rectification c) Oscillation d) Modulation	<b>1</b>
<b>Q.6</b>	<b>Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)</b>	
<b>i.</b>	Which of the following materials is commonly used as a semiconductor? a) Copper b) Silver c) Silicon d) Gold	<b>1</b>
<b>ii.</b>	The process of converting alternating current (AC) to direct current (DC) is known as: a) Filtration b) Rectification c) Amplification d) Modulation	<b>1</b>
<b>iii.</b>	What is the main purpose of a capacitor in an electronic circuit? a) To store electrical energy b) To amplify signals c) To switch the current flow d) To convert AC to DC	<b>1</b>
<b>iv.</b>	In a transistor, the region between the collector and the emitter where no current flows is called: a) Depletion region b) Conduction band c) Forbidden zone d) Base	<b>1</b>
<b>v.</b>	An operational amplifier (op-amp) is typically used for: a) Current regulation b) Voltage amplification c) Signal modulation d) Power amplification	<b>1</b>
<b>vi.</b>	In a digital circuit, the binary number '1010' represents the decimal number: a) 8 b) 9 c) 10 d) 11	<b>1</b>

## **SECTION B: SUBJECTIVE TYPE QUESTIONS**

<b>Answer any 3 out of the given 5 questions on Employability Skills (2 x 3 = 6 marks)</b> <b>Answer each question in 20–30 words.</b>		
<b>Q.7</b>	How do <b>emotional intelligence</b> and <b>non-verbal communication</b> interplay in effective communication? Provide an example.	<b>2</b>
<b>Q.8</b>	Explain the concept of <b>self-motivation</b> and how it can be nurtured over time to achieve long-term goals.	<b>2</b>
<b>Q.9</b>	Differentiate between <b>cloud storage</b> and <b>local storage</b> in terms of data accessibility and security.	<b>2</b>
<b>Q.10</b>	Explain the importance of <b>market segmentation</b> in entrepreneurship. How does it help businesses target customers more effectively?	<b>2</b>
<b>Q.11</b>	Explain the concept of and how it helps in reducing global carbon emissions.	<b>2</b>
<b>Answer any 3 out of the given 5 questions in 20–30 words each (2 x3 = 6 marks)</b>		
<b>Q.12</b>	Explain three safety precautions to be followed while handling electronic equipment connected to power sources.	<b>2</b>
<b>Q.13</b>	What is the role of MSDS (Material Safety Data Sheet) in ensuring occupational safety? Provide an example.	<b>2</b>
<b>Q.14</b>	Discuss the importance of grounding and shielding in electronic circuits.	<b>2</b>
<b>Q.15</b>	Explain the difference between analog and digital television broadcasting.	<b>2</b>
<b>Q.16</b>	Explain the concept of signal-to-noise ratio (SNR) in recording devices. How does SNR affect audio quality?	<b>2</b>
<b>Answer any 2 out of the given 3 questions in 30–50 words each (3x2 = 6 marks)</b>		
<b>Q.17</b>	Compare the working principle of inverter air conditioners with conventional air conditioners. What are the advantages of inverter technology?	<b>3</b>
<b>Q.18</b>	How does a smart appliance contribute to energy efficiency in households?	<b>3</b>
<b>Q.19</b>	Discuss the concept of Personal Protective Equipment (PPE) in the context of occupational safety. Provide examples of PPE used in electronics workshops.	<b>3</b>
<b>Answer any 3 out of the given 5 questions in 50–80 words each (4x3 = 12 marks)</b>		
<b>Q.20</b>	Discuss the role of Internet of Things (IoT) technology in smart appliances. What are the potential benefits and risks associated with IoT-enabled appliances?	<b>4</b>
<b>Q.21</b>	Explain the concept of aspect ratio in television displays. How has aspect ratio evolved over time, and what are its implications?	<b>4</b>
<b>Q.22</b>	Compare and contrast the operational principles of cassette tape recorders and digital audio recorders. How has digital technology revolutionized audio recording?	<b>4</b>
<b>Q.23</b>	Discuss the factors to consider when choosing microphones for different recording scenarios (e.g., studio recording, live performances).	<b>4</b>
<b>Q.24</b>	Outline the steps involved in safely disposing of electronic waste (e-waste). Why is proper disposal important for environmental sustainability?	<b>4</b>