

CBSE | DEPARTMENT OF SKILL EDUCATION

ELECTRONICS & HARDWARE (SUBJECT CODE- 420)

MARKING SCHEME FOR CLASS X (SESSION 2024-2025)

Max. Time: 2 Hours

Max. Marks: 50

General Instructions:

1. Please read the instructions carefully.
2. This Question Paper consists of **21 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 (5 + 16 =) 21 questions, a candidate has to answer (5 + 10 =) 15 questions in the allotted (maximum) time of 2 hours.**
5. All questions of a particular section must be attempted in the correct order.
6. **SECTION A - OBJECTIVE TYPE QUESTIONS (24 MARKS):**
 - i. This section has 05 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 (26 MARKS):**
 - i. This section contains 16 questions.
 - ii. A candidate has to do 10 questions.
 - iii. Do as per the instructions given.
 - iv. Marks allotted are mentioned against each question/part.

SECTION A: OBJECTIVE TYPE QUESTIONS

Q. No.	QUESTION	Marks
Q. 1	Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)	
i.	Which of the following sources of energy is from a renewable source? a) Solar Energy b) Wood c) Coals d) Petrol Answer: a) Solar Energy	1
ii.	Entrepreneurs can create jobs in the market. a) True b) False Answer: a) True	1
iii.	How can an anti-virus protect your device? a) It can protect it from over heating. b) It can increase its performance. c) It can prevent data from getting corrupt. d) It can backup data. Answer: c) It can prevent data from getting corrupt.	1
iv.	In SMART goals, what does 'T' stand for? Answer: Time bound	1
v.	Which of these is NOT a common communication barrier? a) Linguistic barrier. B) Interpersonal barrier. C) Financial barrier. D) Organizational barrier. Answer: c) Financial barrier.	1
vi.	How many Sustainable development goals are given by United Nations? a) 18 b) 17 c) 15 c) 20 Answer: b) 17	1
Q. 2	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)	
i.	Which of the following is not the part of MCB? a) Bimetallic Strip. b) Trip. c) Solenoid. d) Arc-chutes holder. Answer: b) Trip	1
ii.	OLP stands for: a) Auto Switch b) Automatic Protector c) Overload Switch d) Auto Overload Protector. Answer: d) Auto Overload Protector	1
iii.	Which of the following devices is used for overcurrent protection? a) Diode b) High Voltage Capacitor c) High Voltage Transformer d) Fuse Answer: d) Fuse	1
iv.	Rubber is a good conductor of Electricity. a) True b) False Answer: b) False	1
v.	Which of the following is to control the speed of mixer. a) Overload Switch b) Rotary switch c) Power switch d) Control Switch Answer: b) Rotary Switch	1
vi	Which of the following motor is used in a mixer? a) Stepper motor b) Universal motor c) Servomotor d) Induction motor. Answer: b) Universal Motor	1
Q. 3	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)	
i.	Which of the following steps are required to perform CPR? a) Chest compression b) Open airway c) Rescue breathing d) All of the above Answer: d) All of the above	1

ii.	Which of the following tools is used to discharge high voltage capacitor? a) Side cutter plier b) Electrician knife c) Nose plier d) Plier Answer: d) Plier	1
iii	Motor convert the electrical energy into.....energy. Answer: Mechanical	1
iv.	RPM stands for 'Rotation Per Minute' a) True b) False Answer: a) True	1
v.	Which of the following parts use permanent magnet? a) High voltage transformer b) Magnetron c) High voltage capacitor d) Relay Answer: b) Magnetron	1
vi	Steps to use fire extinguisher involves: a) Squeeze the handle b) Pull the pin c) Aim the nozzle d) All of the above Answer: d) All of the above	1
Q. 4	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)	
i.	Which of the following parts produce microwave in microwave oven? a) Magnetron b) Transformer c) High voltage capacitor d) Diode Answer: a) Magnetron	1
ii.	Rotary switch regulates the speed of the mixer motor. a) True b) False Answer: a) True	1
iii.	In a circuit, rise in temperature can occur due to short circuit. a) True b) False Answer: a) True	1
iv	Electrical tools have two parts: conductors and Answer: insulator	1
v.	Which of the following parts respond when there is increase in heat? a) Pre-filter b) Thermostat c) High voltage capacitor d) High voltage transformer Answer: b) Thermostat	1
vi	Electric wires have different colour code. a) True b) False Answer: a) True	1
Q. 5	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)	
i.	Motor works on the principle of Answer: Electromagnetic law of induction.	1
ii	Which of the following is not the type of mixer a) Planetary mixer b) Stand mixer c) Spiral mixer d) Pipe mixer Answer: d) Pipe mixer	1
iii.	Which of the following components are used in microwave oven a) Magnetron b) Transformer c) Relay d) All of the above. Answer: d) All of the above	1
iv	Copper is a good conductor of electricity. a) True b) False Answer: a) True	1
v.	Rotating part of motor is..... Answer: Armature	1
vi.	Which of the following are the types of juicer? a) Centrifugal juicer b) Masticating juicer c) Citrus juicer or Reamer d) All of the above. Answer: d) All of the above	1

SECTION B: SUBJECTIVE TYPE QUESTIONS

Q. No.	QUESTION	Marks
Answer any 3 out of the given 5 questions on Employability Skills in 20 – 30 words each (2 x 3 = 6 marks)		
Q. 6	Write down the Advantages of Verbal Communication? Answer: It is an easy mode of communication in which you can exchange ideas by saying what you want and get a quick response. Verbal communication also enables you to keep changing your interaction as per the other person's response.	2
Q. 7	What is Goal Setting? Answer: Goal setting is a very essential factor in your personal life. The process of goal setting in your life helps you decide on how to live your life, where you want to be, and how you want to be in the future.	2
Q. 8	what measures we can take to protect our data from theft and viruses? Answer: To protect our data from theft and viruses we can take the following measures: <div style="margin-left: 40px;"> (a) Use passwords to login to your computer (b) Install Anti-virus and Firewall: (c) Encrypt Data (d) Secure sites </div>	2
Q. 9	Define the meaning of a career? Answer: A career is a line of work that a person takes for life. There are two ways a person can earn a living. They are 1. self-employment 2. wage employment. For example, a doctor who works for a hospital is a wage employed person. If the same doctor has their own clinic, he or she is a self-employed person.	2
Q. 10	What are the three ways to Create Sustainable Cities? Answer: Creating Sustainable Cities 1. Save energy by switching off lights and fans when not in use. 2. Use natural light as much as possible. 3. Use energy efficient lights (LED bulbs) and appliances.	2
Answer any 4 out of the given 6 questions in 20 – 30 words each (2 x 4 = 8 marks)		
Q. 11	<u>What is Relay?</u> <u>Answer:</u> A relay is an electrically operated switch. It consists of a set of input terminals for a single or multiple control signals, and a set of operating contact terminals. The switch may have any number of contacts in multiple contact forms, such as make contacts, break contacts, or combinations thereof.	2
Q. 12	Name the parts of mixer? Answer: Lid, Liquidizing jar, Dry grinding jar, Wet grinding blade, Blender grinding blade, Dry grinding blade, Wet grinding blade , base unit	2
Q. 13	What is OLP? Answer: Overload protector is used for safety. It protects the mixer from sudden overload. In overload situations, the OLP trips and the mixer/grinder shuts- off immediately. This protects the mixer unit from burning and enhances the motor life. The OLP button is located at the bottom of the unit.	2

Q. 14	List out the needs of microwave in our daily life? Answer: Microwave ovens can be used to reheat and cook food, disinfect kitchen items, make citrus fruits juicier, heat beauty products, roast garlic and de-crystallising honey.	2
Q. 15	What is FIRE EXTINGUISHER ? Answer: A fire extinguisher is a protection device used to extinguish fires. It is the equipment which can be effectively used for controlling fires. A fire extinguisher is a cylindrical pressure vessel containing an agent which can be discharged to extinguish a fire	2
Q. 16	What is PPE? Answer: The kind of personal protective equipment required around a machine will depend up on the machine and the task employee is performing. Nevertheless, safety gloves, safety helmets, safety glasses, earplugs and other gears are important to use where necessary. For safety, signs can be post near panels reminding employees to wear PPE.	2
Answer any 3 out of the given 5 questions in 50– 80 words each (4 x 3 = 12 marks)		
Q. 17	Define AC Motor and Write down the types of AC Motor Write down two uses of Special Motor? Answer: AC motor that converts the electrical energy into mechanical energy. AC motor required AC supply for their operation. AC motors are classified as follows: a) Synchronous motor b) Asynchronous motor The three types of special motors are universal motor, stepper motor, servomotor, etc. Universal motor is used in mixer, grinder, juicer, hand drill machine etc. Stepper motor is used in robots and in those places where we want angular rotation of motor shaft. Servomotor is used in robots and in those places where we require accurate rotation of motor shaft.	2+2
Q. 18	Write down the different steps of Cleaning the juicer? Answer: Following are the steps for cleaning of juicer: Step 1-Switch-off the power and unplug the juicer. Step 2-Follow the dissembling process. Step 3-Wash the parts in water. Step 4-Clean holes of strainer with a brush and mild soap solution. Step 5-Swipe the base with a soft damp cloth. Step 6-Clean all metal parts. Step 7-Let all the parts dry completely before storing.	4
Q. 19	Write down the Major internal parts of microwave oven? Write down the parts of microwave oven operates on high voltage and current? Answer : Major internal parts of microwave oven are as follows: a. Magnetron b. Thermostat c. Input power supply d. High voltage transformer e. High voltage capacitor f. Relay	2+2

	<ul style="list-style-type: none"> g. Printed circuit board h. Fuse i. Cooling fan <p>The Parts of microwave oven operates on high voltage and current:</p> <ul style="list-style-type: none"> a. High voltage capacitor b. High Voltage transformer c. Magnetron d. High voltage rectifier assembly e. High voltage wires 	
<p>Q. 20</p>	<p>Write the Composition of a Microwave Oven?</p> <p>Answer:</p> <p>In general, microwave oven consist of following sections:</p> <ul style="list-style-type: none"> a. Heating room b. Microwave source c. Control panel <p>The Sections elaborated as follows</p> <ul style="list-style-type: none"> a. Heating room: It is composed of cavity combination, turntable system and fire door. b. Microwave source: It is mainly composed of magnetron, transformer, high-voltage capacitor and high-voltage diode. c. Control panel: It is composed of timer, power selector, and different operating buttons 	<p>4</p>
<p>Q. 21</p>	<p>What first aid measure must be taken in case of electrical shock?</p> <p>Answer : Electrical accidents cause countless injuries. Injury could be minimized and many lives saved if proper rescue techniques and treatment are used. Electrical accidents may occur at any time or place. Timely response and treatment of victims is a major concern. When an electrical accident occurs, due to the effect of muscle cramping, a victim is often incapable of moving or releasing the electrical conductor. Caution should be the primary consideration during any electrical accident or emergency. There should always be an emergency response plan for scheduled electrical maintenance or work.</p> <p>These are the measure must be taken in case of electrical shock</p> <p>Approaching the accident Never rush into an accident situation. Call 108 as soon as possible. Approach the accident place cautiously, Examining the scene, Hazards and solutions, High voltage rescue, First Aid,</p>	<p>4</p>