

Marking Scheme
Strictly Confidential
(For Internal and Restricted use only)
Secondary School Examination, 2026 (Xth)
SUBJECT NAME : Electronics & Hardware (Q.P. CODE /Set No. 420/107)

General Instructions: -

1	You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A small mistake in evaluation may lead to serious problems which may affect the future of the candidates, education system and teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully.
2	“Evaluation policy is a confidential policy as it is related to the confidentiality of the examinations conducted, evaluation done and several other aspects. Its leakage to public in any manner could lead to derailment of the examination system and affect the life and future of millions of candidates. Sharing this policy/document to anyone, publishing in any magazine and printing in Newspaper/Website, etc. may invite action under various rules of the Board and IPC.”
3	Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one’s own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed. However, while evaluating, answers which are based on latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and due marks be awarded to them. In Class-X, while evaluating two competency-based questions, please try to understand given answer and even if reply is not from marking scheme but correct competency is enumerated by the candidate, due marks should be awarded.
4	The Marking scheme carries only suggested value points for the answers. These are in the nature of Guidelines only and do not constitute the complete answer. The students can have their own expression and if the expression is correct, the due marks should be awarded accordingly.
5	The Head-Examiner must go through the first five answer books evaluated by each evaluator on the first day, to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. If there is any variation, the same should be zero after deliberation and discussion. The remaining answer books meant for evaluation shall be given only after ensuring that there is no significant variation in the marking of individual evaluators.
6	Evaluators will mark (√) wherever answer is correct. For wrong answer CROSS ‘X’ be marked. Evaluators will not put right (√) while evaluating which gives an impression that answer is correct and no marks are awarded. This is most common mistake which evaluators are committing.
7	If a question has parts, please award marks on the right-hand side for each part. Marks awarded for different parts of the question should then be totaled up and written in the left-hand margin and encircled. This may be followed strictly.
8	If a question does not have any parts, marks must be awarded in the left-hand margin and encircled. This may also be followed strictly.
9	If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out with a note “Extra Question” .

10	No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
11	A full scale of marks _____ (example 0 to 80/70/60/50/40/30 marks as given in Question Paper) has to be used. Please do not hesitate to award full marks if the answer deserves it.
12	Every examiner has to necessarily do evaluation work for full working hours i.e., 8 hours every day and evaluate 20 answer books per day in main subjects and 25 answer books per day in other subjects (Details are given in Spot Guidelines). This is in view of the reduced syllabus and number of questions in question paper.
13	<p>Ensure that you do not make the following common types of errors committed by the Examiner in the past :-</p> <ul style="list-style-type: none"> • Leaving answer or part thereof unassessed in an answer book. • Giving more marks for an answer than assigned to it. • Wrong totaling of marks awarded on an answer. • Wrong transfer of marks from the inside pages of the answer book to the title page. • Wrong question wise totaling on the title page. • Wrong totaling of marks of the two columns on the title page. • Wrong grand total. • Marks in words and figures not tallying/not same. • Wrong transfer of marks from the answer book to online award list. • Answers marked as correct, but marks not awarded. (Ensure that the right tick mark is correctly and clearly indicated. It should merely be a line. Same is with the X for incorrect answer.) • Half or a part of answer marked correct and the rest as wrong, but no marks awarded.
14	While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as cross (X) and awarded zero (0) Marks.
15	Any unassessed portion, non-carrying over of marks to the title page, or totaling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also of the Board. Hence, in order to uphold the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.
16	The Examiners should acquaint themselves with the guidelines given in the “Guidelines for Spot Evaluation” before starting the actual evaluation.
17	Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totaled and written in figures and words.
18	The candidates are entitled to obtain photocopy of the Answer Book on request on payment of the prescribed processing fee. All Examiners/Additional Head Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points for each answer as given in the Marking Scheme.

MARKING SCHEME
Electronics & Hardware (Subject Code-420)
(PAPER CODE : 107) (M1070420)

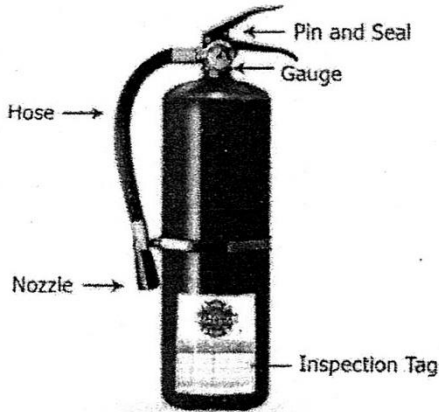
Q.No.	EXPECTED OUTCOMES/VALUE POINTS	Marks
	SECTION - A	
1.	Answer any 4 out of the given 6 questions on Employability Skills (1x4=4 marks)	
I.	(A) Specific feedback (U-1 Pg 18)	1
II.	(B) Realistic (U-2 Pg 56)	1
III.	(B) Ability (U-2 Pg 48)	1
IV.	(D) Check for expiry of antivirus software and renew (U-3 Pg 76)	1
V.	(D) Fostering innovation and economic growth (U-4 Pg 93)	1
VI.	(D) Space research (U-5 Pg 106)	1
2.	Answer any 5 out of the given 6 questions (1x5=5 marks)	
I.	(C) Produce cooking frequency	1
II.	(A) Remove it immediately	1
III.	(B) Direction of force	1
IV.	(D) Electrical cable and wire	1
V.	(B) Universal motor	1
VI.	(C) Plunger	1
3.	Answer any 5 out of the given 6 questions (1x5=5 marks)	
I.	(B) 1, 2	1
II.	(A) Keeping the workplace tidy	1
III.	(C) Juicer	1
IV.	(A) 419	1
V.	(D) Fuse	1
VI.	(B) By making the terminals capacitor short	1
4.	Answer any 5 out of the given 6 questions (1x5=5 marks)	
I.	(B) Control panel	1
II.	(C) Prescription medicines	1
III.	(C) Strainer	1
IV.	(A) 1831	1
V.	(B) High speed spinning blade	1
VI.	(D) 4000V	1

5.	Answer any 5 out of the given 6 questions in True/False (1x5=5 marks)	
I.	True	1
II.	False	1
III.	False	1
IV.	False	1
V.	False	1
VI.	True	1
	<u>SECTION – B : SUBJECTIVE TYPE QUESTIONS</u>	
Answer any 3 out of the given 5 questions on Employability Skills in 20-30 words each (2x3=6 marks)		
6.	As there are various stakeholders like customers, employees, vendors, media etc, are always sending important information to each other. It has three important parts. (1) Transmitting (2) Listening (3) Feedback	2
7.	(1) Self Awareness (2) Responsibility (3) Time management (4) Adaptability (Any other relevant point)	2
8.	(1) Roll over or Hover (2) Point and click (3) Drag and drop (4) Double click (U-3 Pg 67)	2 (0.5x4)
9.	(a) A career is a line of work that a person takes for life. (b) Two ways are : (i) Self employment (ii) Wage employment (U-4 Pg 100)	1 1
10.	To reduce inequalities we cant : 1. be helpful to one another 2. be friendly with everyone 3. include everyone while working or playing 4. Help others by including everyone whether they are small or big, boy or girl, belong to any class or caste (U-5 Pg 111)	2
Answer any 4 out of the given 6 questions in 20-30 words each (4x2=8 marks)		
11.	Construction of fuse A general fuse consists of a low resistance metallic wire enclosed in a non-combustible material. It is used to connect and install in series with a circuit and device, which needs to be protected against short circuit and over current, otherwise, electrical appliance may be damaged. If there is over current the fuse wire melt and create open circuit, there by device is kept safe.	2

12.	<ul style="list-style-type: none"> • Chest Compression • Open the mouth for airway • Rescue breathing <ul style="list-style-type: none"> ➤ If the victim is breathing and has a heartbeat, give first aid for injuries and treat for shock. ➤ Ensure the victim gets medical care as soon as possible. Physician attending the victim must have detailed information to properly diagnose and care for the victim. 	2
13.	<p>Following point must be checked before using the mixer/grinder :</p> <ol style="list-style-type: none"> 1. Check that all parts are present. 2. Check for any damage to the unit or attachments. 3. Wash the jars, lids and blades with warm water. 4. Clean the body with soft cloth. 5. Ensure that the motor shaft rotates freely and smoothly. 6. Ensure that the jar shaft rotates freely and smoothly. 	2
14.	<p>Follow the following steps to disassemble and test the fuse of microwave oven.</p> <p>(a) Detach the housing of microwave oven.</p> <p>(b) Pull out fuse present between the transformer and the high voltage capacitor.</p> <p>Test it using continuity tester, if it is found fused then replace the fuse.</p>	2
15.	<p>There are many types of juicer depending on their juice extraction method.</p> <p>Different types of juicer are as follows :</p> <ol style="list-style-type: none"> 1. Centrifugal juicer 2. Masticating juicer 3. Citrus juicer or Reamer 	2
16.	<p>An electrical hazard defines a dangerous condition. This dangerous condition is related to energized equipment or a conductor at workplace. If a technician comes in contact with this energized equipment, this equipment may injure the technician. There is a possibility of getting the shock or receive an arc flash burn, thermal burn, or blast injury. When assembling the components in a unit. Many of the hazards can be avoided by being aware and taking appropriate precautions. This will ensure safety at workplace.</p>	2

Answer any 3 out of the given 5 questions in 50-80 words each (3x4=12 marks)

17.	Sl. No.	Problems	Solution	4
	1	If base unit fails to start	<ul style="list-style-type: none"> • Ensure cord is plugged-in properly • Ensure power supply is active • Ensure the unit is switched-on • Ensure that the jar is not overloaded 	
	2	If motor stopped	<ul style="list-style-type: none"> • Ensure cord is plugged-in properly • Ensure that the grinder safety knob is not loose • Switch-off the unit and unplug • Let the juicer cool down from overheating 	
	3	If mixer does not function at all speeds	<ul style="list-style-type: none"> • Check the speed control • Replace if defective 	
	4	If motor hums but beaters do not rotate	<ul style="list-style-type: none"> • Check motor • Replace if defective 	
	5	If excessive vibration in mixer	<ul style="list-style-type: none"> • Check and replace beaters if defective • Check and service gears if broken or misaligned • Check and replace motor if defective 	
	6	If mixer is noisy	<ul style="list-style-type: none"> • Switch-off the mixer and unplug • Stir the contents into middle of jar from the walls • Add water and start 	
	7	If overflowing jar	<ul style="list-style-type: none"> • Check and reduce excess liquid from jar • Check and fit the cap properly 	
	8	If jar leaking from below	<ul style="list-style-type: none"> • Check blade shaft/jar brush • Replace if worn-out 	

18.	<p>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. A fire extinguisher should always be available in areas where persons work with electrical equipment.</p> <p>Different parts of fire extinguisher</p> 	4
19.	<p>Working of microwave oven</p> <p>The 230 V AC input power is applied through the power cord. This power will get into the power circuit board, which has number of components. Pre-filter is used to filter the noise elements present in the supply. Power board also has a fuse for overcurrent protection. From there, the power will pass to the printed circuit board via the thermostat. Thermostat will protect the oven from excessive heat development. Thermostat will turn OFF the oven, in case of excessive heat in the cooking chamber cavity. In printed circuit board, relays are used which prevent the flow of excessive current. From these relays power is transferred to the high voltage transformer. High voltage transformer has one primary winding but two secondary windings. One secondary winding is use to step down the applied 230V, while the other secondary winding is used to step up the applied 230V. Stepdown secondary will reduce the applied voltage to 3.3V. Step up voltage will increase to 2000V. High voltage capacitor is charged by the transformer. This will form approximately 4000V (addition of 2000V of transformer and 2000V of capacitor). This 4000V AC is converted into DC using high voltage diode. Magnetron has cathode and anode. At the cathode 4000V DC and 3.3V DC at the anode is applied. After taking large amount of applied voltage magnetron, stats working. It generate microwaves which heat the material in chamber.</p>	2+2
20.	<p>(a) Testing the thermostat of the microwave oven</p> <ul style="list-style-type: none"> (i) Detach and unscrew the housing of microwave oven. (ii) Detach the thermostat from the magnetron (iii) Test the thermostat using continuity tester. If the light is glowing, that means that the relay is working properly. <p>(b) Steps to test the relay of microwave oven</p> <ul style="list-style-type: none"> (i) Detach the housing of the microwave oven (ii) Pull relay plug out of PCB (iii) Test the continuity of the relays using continuity tester 	4

21.	<p>Chemical Hazards occur :</p> <ol style="list-style-type: none"> 1. If chemicals are improperly stored, there can be a chemical leak. 2. If the technicians do not take safety measures, the chemicals may spill over and cause damages. 3. Mishandling of chemicals due to inadequate training or negligence. <p>Diseases and environmental illnesses can be caused by exposure to toxic substances in the workplace.</p> <p>After a person has been exposed to chemical hazards in the workplace, some of the symptoms of exposure to toxins can include :</p> <p>Chemical burns, itchy burning eyes, nausea, vomiting and diarrhoea, headaches, fever, rapid heart rate.</p>	4
	<p style="text-align: center;">- o O o -</p>	