

CBSE | DEPARTMENT OF SKILL EDUCATION

Electronics and Hardware (SUBJECT CODE-420)

MARKING SCHEME FOR CLASS IX

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	Source Material (NCERT/NCERT/ CBSE Study Material)	Unit/ Chap. No.	Page no. of source material	Marks
Q. 1	Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)				
i.	Answer: a) Listening	NCERT	Unit 1	Page -06	1
ii.	Answer: a) Smart	NCERT	Unit 2	Page -81	1
iii.	Answer: c) Committed	NCERT	Unit 2	Page- 70	1
iv.	Answer: a) .jpg	NCERT	Unit 3	Page -110	1
v.	Answer: b) Solve Customer's need innovatively	NCERT	Unit 4	Page- 138	1
vi.	Answer: c)Wastes less items	NCERT	Unit 5	Page -185	1

Q. 2	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)				
i.	Answer: a) Ampere	NCERT	Unit 1	Page -07	1
ii.	Answer: b) Inductor	NCERT	Unit 2	Page- 61	1
iii	Answer: 50-70 psi (Pound per inch)	NCERT	Unit 4	Page- 134	1
iv	Answer: a) Multimeter	NCERT	Unit 3	Page -86	1
v	Answer: d) All of the above	NCERT	Unit 5	Page -191	1
vi	Answer: b) 5	NCERT	Unit 2	Page- 63	1
Q. 3	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)				
i	Answer: b) 500 mg/L	NCERT	Unit 5	Page -191	1
ii	Answer: a) Tap and dies	NCERT	Unit 6	Page- 226	1
lii	Answer: b) 5 A	NCERT	Unit 1	Page- 29	1
iv	Answer: Megger Meter	NCERT	Unit 3	Page -105	1
v	Answer: d) All of the above	NCERT	Unit 2	Page- 50	1
Vi	Answer: c) Both a & b	NCERT	Unit 2	Page- 62	1
Q. 4	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)				
i	Answer: True	NCERT	Unit 6	Page -234	1
ii	Answer: b) $1.1k\Omega \pm 5\%$	NCERT	Unit 2	Page- 51	1
lii	Answer: Purity, Quality	NCERT	Unit 5	Page- 191	1
iv	Answer: c) Equal to 7	NCERT	Unit 4	Page- 114	1
i. v	Answer: Ohm's Law	NCERT	Unit 1	Page -24	1
ii. vi	Answer: Clamp Meter	NCERT	Unit 3	Page -103	1

Q. 5 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)					
i	Answer: a) AC	NCERT	Unit 2	Page -70	1
ii	Answer: 1000, 3600	NCERT	Unit 1	Page- 12	1
iii	Answer: b) Anode	NCERT	Unit 2	Page- 68	1
iv	Answer: a) 50 PPM	NCERT	Unit 4	Page- 165	1
v	Answer: a) 0-80 PPM	NCERT	Unit 6	Page-196	1
vi	Answer: Neon	NCERT	Unit 3	Page- 94	1

SECTION B: SUBJECTIVE TYPE QUESTIONS

Q. No.	QUESTION	Source Material (NCERT/NCERT/ CBSE Study Material)	Unit/ Chap. No.	Page no. of source material	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	Answer: Self-confidence is an attitude about your skills and abilities. It means you accept and trust yourself and have a sense of control in your life. You know your strengths and weakness well, and have a positive view of yourself. You set realistic expectations and goals, communicate assertively, and can handle criticism.	NCERT	Unit 2	Page -67	2
Q. 7	Answer: The uses of internet are as follows:- i) Electronic Mail (email): The first major use of the internet is Email. ii) Search Information: - You can get the latest information. iii) Online Banking: - You can do banking operations. iv) Online learning:- There are number of courses available online which may access through internet etc.	NCERT	Unit 3	Page- 113	2

Q. 8	Answer: Effective communication can happen if we follow the basic principles of professional communication skills. These can be abbreviated as 7 Cs, i.e., Clear, Concise, Concrete, Correct, Coherent, Complete and Courteous.	NCERT	Unit 2	Page-0 4	2
Q. 9	Answer: Green skilling is crucial for making a transition from energy and emissions — intensive economy to cleaner and greener production and service. It also prepares people for green jobs that contribute to preserving or restoring the quality of the environment.	NCERT	Unit 5	Page- 187	2
Q. 10	Answer: The steps which should be follow to start a business are- i) The first step is to come up with a business idea. ii) Once you have the idea, you can start on a small scale with some money which will help you in buying basic material. iii) Once you start selling, you will find out what your customer needs. iv) Improving Product/service	NCERT	Unit 4	Page -160	2
Answer any 4out of the given 6 questions in 20 – 30 words each (2 x 4 = 8 marks)					
Q. 11	Answer: Ohms law states that “Current is directly proportional to the applied Voltage. Thus from the ohm’s law we have $V = I R$ where, V = voltage applied to the conductor. I = current flowing to the conductor. R = resistance of the conductor	NCERT	Unit 2	Page- 33	2
Q. 12	Answer: Depending on the water purification methods the following figure lists these categories:- i) Reverse Osmosis(RO) ii) Ultra filtration(UF) iii) Ultra violet(UV) iv) Gravity Based v) Activated Carbon	NCERT	Unit 4	Page- 124	2

Q. 13	<p>Answer: Following points defines the error in cleaning the filters:</p> <p>i. O-ring is not present in the filter housing, this will result in leakage.</p> <p>ii. While replacing the membrane, it should be correctly inserted in the filter housing.</p>	NCERT	Unit 6	Page -221	2
Q. 14	<p>Answer: In forward-biased condition, diode will pass the current through it so it will acts as a close switch (it will turned -ON). In reverse biased condition, diode will not pass the current through it. So will acts as an open switch (it will turned -OFF).</p>	NCERT	Unit2	Page- 64	2
Q. 15	<p>Answer: The device enables us to measure electrical leakage in wire. It is separate into mainly two categories- i) Electronic megger ii)Manual megger .The equipment basically uses for verifying the electrical insulation level of any device such as motors, cables, generators, windings, etc.</p>	NCERT	Unit 3	Page- 105	2
Q. 16	<p>Answer: TDS indicate the possibility of toxic ions such as lead, arsenic, cadmium and others dissolved in water. So it is important to monitor the TDS regularly to ensure that the water purification system is effective in removing unwanted particles from water.</p>	NCERT	Unit 5	Page- 192	2

Answer any 3 out of the given 5 questions in 50– 80 words each (4 x 3 = 12 marks)

Q. 17	<p>Answer: First band represents the first significant figure of resistor value. Second band represents the second significant figure of resistor value. Third band represents the decimal multiplier after the first-two significant figures of resistor value. Fourth band represents the tolerance of resistor. According to colour code: Yellow (4) Violet (7) orange (3) gold (5 %).</p> <p>Thus resistance value is $47 \times 10^3 \pm 5\% \Omega$. = $47 \pm 5\% \text{ k}\Omega$. (1 k Ω. = 1000 Ω.)</p> <p>To find out the range of the resistor we have to add and subtract the tolerance value of the resistor.</p> <p>So the highest range / value of the resistor will be $[47 + (47 \times 5\%)] \text{ k}\Omega$. = $[47 + 2.35] \text{ k}\Omega$. = 49.35 k$\Omega$</p> <p>And the lowest range / value of the resistor will be $[47 - (47 \times 5\%)] \text{ k}\Omega$ = $[47 - 2.35] \text{ k}\Omega$. = 44.65 k$\Omega$.</p>	NCERT	Unit 2	Page- 51	4
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Q. 18	<p>Answer: The main differences between Water filter and water purifiers are:</p> <p>a) Water Filter eliminates or minimizes impurities such as dissolved salts and heavy metals. Whereas Water Purifier eliminate contaminants such as bacteria and viruses in water.</p> <p>b) Water filters Work like a strainer and prevent unwanted elements from entering. Whereas water purifier Kills and removes unwanted elements from water.</p> <p>c) Water filters cannot remove viruses from water. Whereas water purifier removes even essential minerals from water.</p> <p>d) The basic water filtration form of water filter is water filters by using 2-3 water filtration layers. Whereas water purifier uses double purification to combine RO/UF/UV in a multistage filtration process.</p>	NCERT	Unit 4	Page -119	4
Q. 19	<p>Answer: Following steps are used for the replacement of membrane in purifier:-</p> <p>a) To install membrane, unscrew the membrane housing by removing the blue clip.</p> <p>b) Once the membrane housing is unscrewed, remove old membrane by pulling membrane upward using pliers if necessary</p> <p>c) Install the new membrane by inserting it downward into the housings, with the seal at the top end of the membrane.</p> <p>d) Make sure the black ring on the membrane must be at top end of the membrane housing</p> <p>e) When installing membranes, orientation of black ring must be proper</p> <p>f) Now, again tighten the cap of the membrane housing using membrane wrench</p>	NCERT	Unit 5	Page- 196	4
Q. 20	<p>Answer:Troubleshooting refers to repair of faulty products or processes.</p> <p>Troubleshooting begins with searching for the source of a problem and ends with finding the solution for that problem to ensure that the product or process functions properly. Good troubleshooting consists of the following four steps:</p> <p>a) <u>Identification of the symptoms</u> :- As a technician first I have to identify the problems. For example – high TDS in out put water or there is bad taste or odor in water.</p> <p>b) <u>Elimination of the causes of a problem</u>:- After identify the problem technician must be solve the</p>	NCERT	Unit 5	Page- 186	(1+3)

	<p>problems. For example –if high TDS in output water then the possible solution is that clean/ replace post-carbon filter or replace pre filter.</p> <p>c) <u>Verification of the solution</u>:- After eliminate the problems technician must be verify the solution i.e he used to recheck whether the filter is functioning good or not.</p> <p>d) <u>Restoration of the product or process</u>:-Lastly if possible the product that has been damaged the technician must be try for restoration of the product.</p>				
<p>Q. 21</p>	<p>Answer: The remedies should be taken in workplace are-</p> <p>a) <u>Approaching the accident place:</u></p> <ol style="list-style-type: none"> i) Never rush into an accident situation. ii) Call 108 as soon as possible. iii) Get the aid of trained electrical personnel if possible. iv) Cautiously approach the accidental place. <p>b) <u>Examining the accident place:</u></p> <ol style="list-style-type: none"> i) Visually examine victims to determine if they are in contact with energized conductors. ii) Metal surfaces, objects near the victim or the earth itself may be energized. iii) Do not touch the victim or conductive surfaces while they are energized <p>c) <u>Rescuing the victim :</u></p> <ol style="list-style-type: none"> i) Stand on a dry rubber mat or other insulating material if possible. ii) Do not touch the victim or conductive material near the victim until the power is off. iii) Once power is off, examine the victim to determine if they should be moved. Give —First Aid. <p>d) <u>First Aid :</u></p> <ol style="list-style-type: none"> i) A victim may require Cardio-Pulmonary Resuscitation (CPR) or artificial respiration. ii) If the victim is breathing and has a heartbeat, give first aid for injuries and treat for shock. iii) Ensure the victim gets medical care as soon as possible etc. 	<p>NCERT</p>	<p>Unit 6</p>	<p>Page -222</p>	<p>4</p>