PRE-BOARD EXAMINATION MARKING SCHEME (2018-19)
CLASS X

SCIENCE

General Instructions

1. The Marking Scheme provides general guidelines to reduce subjectivity in the marking. It carries only suggested value points for the answer. These are only guidelines and do not constitute the complete answer. Any other individual response with suitable justification should also be accepted even if there is no reference to the NCERT textbook.
2. 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.
3. If a question has parts, please award marks in the right hand side for each part. Marks awarded for different parts of the question should then be totalled up and written in the left hand margin.
4. If a question does not have any parts, marks be awarded in the left hand side margin.
5. If a candidate has attempted an extra question, marks obtained in the question attempted first should be retained and the other answer should be scored out.
6. Wherever only two/three of a 'given' number of examples/factors/points are expected only the first two/three or expected number should be read. The rest are irrelevant and should not be examined.
7. There should be no effort at 'moderation' of the marks by the evaluating teachers. The actual total marks obtained by the candidate may be of no concern of the evaluators.
8. All the Head Examiners / Examiners are instructed that while evaluating the answer scripts, if the answer is found to be totally incorrect, the (X) should be marked on the incorrect answer and awarded '0' marks.
9. ½ mark may be deducted if a candidate either does not write units or writes wrong units in the final answer of a numerical problem.
10. A full scale of mark 0 to 100 has to be used. Please do not hesitate to award full marks if the answer deserves it.

Section -A

1. Phloem 1

2. Rajasthan 1

Section -B

3. $CH_3COO\ C_2H_5$ - Structure 1

$CH_3COO\ C_2H_5 + NaOH$ ----------> $CH_3COONa + C_2H_5OH$ 1

4. Duplication of DNA (1) 23 Chromosomes (1)

5. ½ mark for each characteristics for image formed by a plane mirror.

½ ×4=2

OR

Optical density is directly proportional to refractive index.

1

Diamond has maximum optical density (2.42) and air has lowest optical density (1.0003) **1**

SECTION- C

6) Definition **1**

a) PbO – Reduced C – Oxidised **1**

b) MnO_2 – Reduced HCl – Oxidised **1**

7) i) Calcium Sulphate hemihydrate $CaSO_4.\ ½\ H_2O$ **1**

ii) $CaSO_4.\ 2H_2O$ ----------(Heat/373k)----------> $CaSO_4.\ ½\ H_2O + 3/_2H_2O$ **1**

iii) Used to join fractured bones , Used to make sculptures or any other relevant uses. **1**

OR

Ans.7) i) Below this pH value, the medium of the mouth becomes more acidic due to which tooth enamel corrodes at faster rate. **1**

ii) Ammonia dissolves in water as follows:

$NH_3 + H_2O$ ----------> $NH_4^+ + OH^-$

The hydroxyl ions produced in the solution are responsible for basic character of ammonia. **1**

iii) On passing carbon dioxide insoluble calcium carbonate is formed which make the solution turn turbid or milky

$Ca(OH)_2 + CO_2 \text{ ----------> } CaCO_3 + H_2O$

When CO_2 is passed in excess, milkiness disappear due to soluble Calcium Hydrogen carbonate

$CaCO_3 + H_2O + CO_2 \text{ ----------> } Ca(HCO_3)_2$ **1**

Ans.8) i) Soaps – Sodium or potassium salts of higher fatty acid – COONa

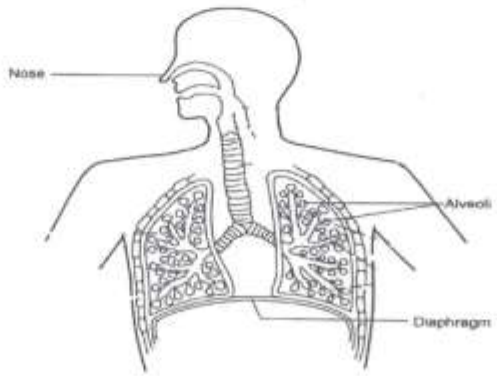
Detergents – Sodium or Potassium salts of higher Sulphonic acid – SO_3Na **1**

ii) Detergents do not form insoluble salts with Mg^{2+} and Ca^{2+} ions **1**

iii) Some of them are non-biodegradable and create water pollution Or any other relevant use. **1**

9. (i) When light is coming from one side of the plant, auxin diffuses towards the shady side of the shoot. Concentration of auxin stimulates the cells to grow longer on the shoot which is away from light . So plant appears to bend towards the light. **(2)**
(ii) Growth of pollen tube towards ovules. (½)
(iii) Roots (½)

10. Diagram (**1** ½) Labelling (i) Nose (½) Alveoli (½) Diaphragm (½)



11. For a concave mirror object is placed beyond C, Image is between C&F & it is real, inverted and diminished. ½ + ½ +1

1 mark for Ray Diagram

OR

Its a concave lens, As far all positions of object the image will be virtual, erect, diminished & smaller than object. 1

It will be formed between optical centre & Focus. 1

1 mark for Ray diagram

12. a) Use of Copper & Aluminium. 1

b) Energy consumed per day =1Kwh (P×T)

= (500×2 hr)/1000 =1Kwh 1

Cost for 30 days = 1×5×30 = Rs.150 1

13. R=26Ω l=1m

D=0.3mm = 3×10^{-4}m ½

r = d/2 = 1.5×10^{-4}m ½

A = $\pi r^2 = 22/7\times(1.5\times10^{4})^2$ ½

rho= $(R\times A)/l = (26\times22\times2.25\times10^{-8})/7\times1$ m 1

Resistivity = $1.84\times 10^{6}\Omega$m ½

14 a. Gas chamber.

b. 15 km / hr.

c. Acidic oxides of carbon , sulphur , nitrogen get dissolved in water forming acid rain. 1 Mark for each part

15. (i) Green plants and Blue green algae (½ + ½) First trophic level (½)

(ii)Vulture (½) Biological Magnification (1)

OR

Tigers will get only 3J of energy (½) ; 10% law.(½)

Reason/ explanation : Plants get 1% of 30000J that is 300J, deer will get 10% of 300J that is 30J and tigers will get 10% of 30J that is 3J (2)

SECTION - D

16) i) Roasting :- Conversion of sulphide ores into oxides ores by heating in the presence of excess air.

Calcination :- Conversion of carbonate ores into oxides by heating in the absence of or in limited supply of air. **1**

Roasting is used for Sulphide ores ½

In roasting sulphide ore is roasted to oxide so it is easier to obtain metal from its oxide as compared to its sulphide **1**

ii) $Fe_2O_3 + 2Al \xrightarrow{\text{Heat}} 2Fe + Al_2O_3$ **1**

iron(III) oxide aluminium powder iron metal aluminium oxide

iii) Anode – Impure copper ½

Cathode – Strip of pure copper ½

Electrolyte – Acidified copper sulphate solution ½

17).i) Vertical columns – groups ½

Horizontal rows – Periods ½

ii) Metallic character increases ½

Reason – increase in size so easy to lose electron ½

ii)

	Period	Group	
P	4	2	½
Q	3	17	½

P – 2, 8, 8, 2 ½

Q – 2, 8, 7 ½

PQ_2 **1**

OR

i) Definition **1**

ii) a) Nitrogen ½

Atomic no 7

Valence electron - 5 ½

b) Structure **1**

Triple covalent bond ½

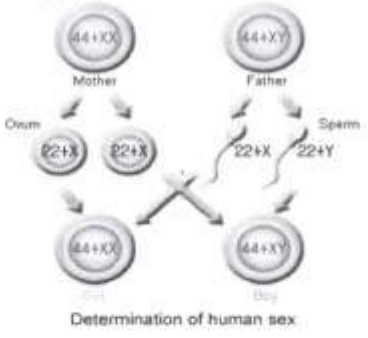
c) Structure **1**

Single covalent bonds ½

18. (a) Diagram (1 ½) ,labelling(i) testis (½) (ii) seminal vesicle / Prostate gland (½) (iii) Urethra (½)

(b) sperm formation requires less temperature than body temperature **(1)**
(c) Bacterial – Gonorrhoea, syphilis (any one ½) viral – Warts, HIV-AIDS (any one ½)

19. (a) Flow chart diagram . parents (**1**) gametes (**1**) girl (½) boy (½)

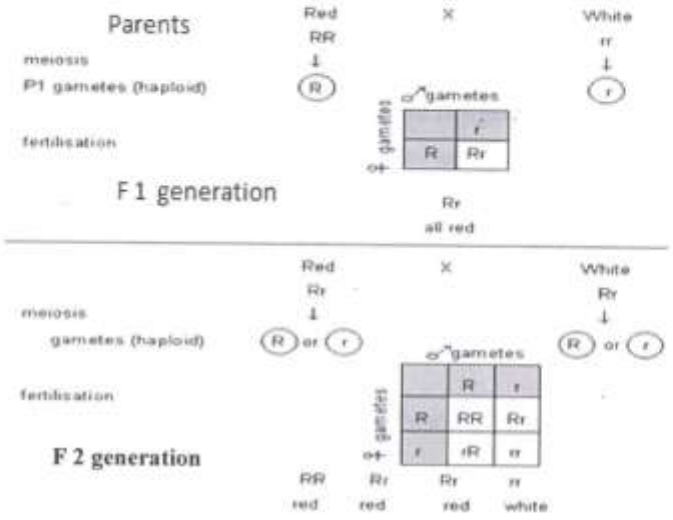


or fig on page 146 (NCERT Book)

(b) Acquired characters will not be inherited to the progeny **(1)**
(c) Geneflow - Migrated individuals will reproduce with the local population and the genes of the migrated individuals will enter in to the new local population . or any other explanation.

OR

(a) flow chart for ref only. No marks.



(i)Color of all flowers in F1 generation is RED **1**

(ii) Ratio of Red white flowers in F2 generation is 3:1 **1**

(iii) Genetic make up red and white flowers RR,Rr,rr **1**

(b) Homologous organs - Origin is same and function is different
Analogous organs - Function is same and origin is not common **2**

20. Person is suffering from Myopia or Short sightedness. **1**
Concave lens should be used to rectify the defect. **1**
Defected eye ray diagram. **1½**
Correct eye with right position of concave lens. **1 ½**

21. a) 1 mark for each difference. **1×2**

b) Definition. **2**
c) Rule with a proper diagram. **1**

OR

a. 1 mark for each method
b. When direction of magnetic field is perpendicular to direction of current , the force experienced will be maximum **1**
c. No force will be experienced as proton beam is moving along the direction of magnetic field. **2**

SECTION - E

Ans.22) $2FeSO_4 \xrightarrow{\text{Heat}} Fe_2O_3 + SO_2 + SO_3$

a) The colour will change from green to black **1**

b) Smell of burning sulphur is obtained. **1**

OR

Ans.22) Two Observations:

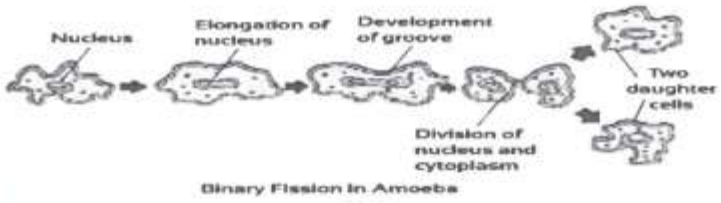
a) Brisk effervescence

b) Evolution of colourless/ odourless gas **1**

$CH_3COOH + NaHCO_3 \longrightarrow CH_3COONa + H_2O + CO_2$ **1**

Ans.23) Zinc is most reactive metal followed by iron and then copper, therefore, a grey deposit forms on the zinc but not on the copper. Zinc being more reactive than iron, displace it from the Iron sulphate solution. **2**

24. Binary fission (½) diagram (1 ½)



Binary Fission in Amoeba

OR

Flower buds also respire actively like germinating seeds as they grow actively. **2**

25. A- Plumule – develops in to shoot system **1**
B- Radicle - develops in to Root system **1**

26. a) Voltmeter is connected in parallel to resistance. **1**
b) ½ mark for each difference.

27. **1** ½ Mark for correct ray diagram with arrows and labelling.
½ Mark for nature and position of image.

OR

1 mark for correct ray diagram
½ mark for each labelling **½ x 2=1**