

AP SSC Class 10 Science Previous Year Question Paper 2019 Solutions Part 1

1. Let heat is riot lost by any other process between two objects in thermal contact, "Net heat lost (by hot body) = Net heat gain (by cold body)".

Above statement indicates a principle. Write the name of that principle.

Answer: The above statement indicates principle of method of mixtures.

2. Pose a question to understand the difference between plane mirrors and curved mirrors.

Answer: Are the mirrors that are generally used in our homes and rear view mirrors used in cars the same?

3. A teacher asked to give an example for Dobereinet's triad. Ramu wrote them as "Li, Na, Mg". In these three, identify which element does not belongs to this triad?

Answer: The element that does not belong to Dobereinet's triad is Magnesium.

4. Imagine and write what type of ion can be formed generally by an atom of element with low ionisation energy, low electron affinity with high atomic size?

Answer: The type of ion that can be formed generally by an atom of element with low ionization energy, low electron affinity with high atomic size is Positivity charged ion.

5. Temperatures of two cities at different times are given as follows:

Time/City	At 6 AM	At 11.30 AM	At 6.30 PM
A	-3°C	300K	5°C
B	271K	27°C	270K

On the basis of above table, answer the following questions.

- (1) In which city, the morning temperature at 6 o'clock is relatively high?
- (2) At what time, both cities are having the equal temperature'!

Answer 1: The morning temperature is high in City B.

Answer 2: Both the cities are having the equal temperature at 11.30 AM.

6. While doing an experiment with a mirror to get an image, Gayathri got magnification value m as +1.5. Based on the above statement answer the following

- (i) Which mirror she used for this experiment?
- (ii) Write any two characteristics of the image formed at this magnification value.

Answer (i) She used concave mirror for this experiment.

Answer (ii) The two characteristics of the image formed at this magnification value are:

- Virtual and Erect image
- The image is enlarged by 1.5 times.

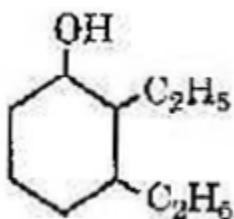
7. Write the material that you use to find out the value of refractive index of a prism. What is the necessity of the graph in this experiment?

Answer: The materials that we require to find out the value of refractive index of a prism are Prism, Piece of white chart, Pencil, Pins, Scale and Protractor. We need the graph to find the angle of minimum deviation.

8. Imagine, which one in each of the following pairs is large in size relatively with other? Explain.
(X) Na, Al (Y) Na, Mg^{2+}

Answer: (X) Na - because in a periodic table atomic size gradually decreases from left to right.
(Y) Na – Compared to Mg, Na is larger and Mg is larger than Mg^{2+} . Hence Na is larger than Mg^{2+} .

9.



Based on the diagram, answer the following.

- Write the name of the compound.
- Write the name of functional group in the structure.

Answer 1: The name of the compound is 2, 3-di ethyl-cyclo hexan-1-ol.

Answer 2: The name of functional group in the structure is alcohol.

10. Write the role of lenses in our daily life.

Answer: Lenses are used in our daily life for the following reasons.

- It is used for correcting eye defects
- It is used in cameras, telescopes, binoculars, etc.
- It is used in microscopes.
- It is also used in cinema projectors, magnifying lens, etc.

OR

A house has 3 tubelights, 2 fans and a television. Each tubelight draws 40 W. The fan draws 80 W and the television draws 60 W. On an average, all the tubelights are kept on for five hours, two fans for 12 hours each and the television for five hours a day, Find the cost of electric energy used in 30 days at the rate of Rs. 3.00 per KWH.

Answer: Total consumption of current in 30 days

$$\begin{aligned} &= [(3 \times 40 \times 5) + (2 \times 80 \times 12) + (5 \times 60 \times 1)] \times 30 / 1000 \\ &= [(600 + 1920 + 300) \times 30] / 1000 = 2820 \times 30 / 1000 \\ &= 84.6 \text{ KWH} \end{aligned}$$

Cost of 1 unit (KWH) charge = Rs 3.00/-

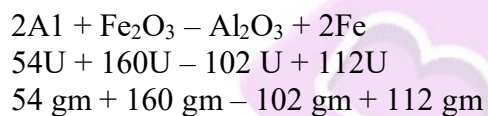
$$\begin{aligned} \text{Cost of 84.6 KWH} &= 84.6 \times 3 \\ &= \text{Rs } 253.80 \end{aligned}$$

11. $2\text{Al} + \text{Fe}_2\text{O}_3 \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$

(Al = 27u, Fe = 56u, O = 16u are the atomic masses)

How much of Iron, we can get if 54 kg of Aluminum is used?

Answer: As per the balanced equation



Aluminium – Iron

54 gms – 112 gms

54 kgs – 112 kgs

Hence, if 54 kg of Aluminum is used we can get 112 kg of Iron.

OR

Write Bohr's model of Hydrogen atom and its limitations.

Answer: Bohr's model of Hydrogen

- 1) Electrons in an atom occupy stationary orbits of fixed energy at different distances from the nucleus.
- 2) When an electron jumps from a lower energy state to higher energy state it absorbs energy or emits energy when such a jump occur from a higher energy state to a lower energy state.

- 3) The energies of an electron in an atom can have only certain values E_1, E_2, E_3, \dots that is the energy is quantized. The states corresponding to these energies are called stationary states and the possible values of the energy are called energy levels.

Limitations: Bohr's model failed to account for splitting of line spectra.

12. Write the procedure of a lab activity understand lateral shift of light rays through a glass slab.

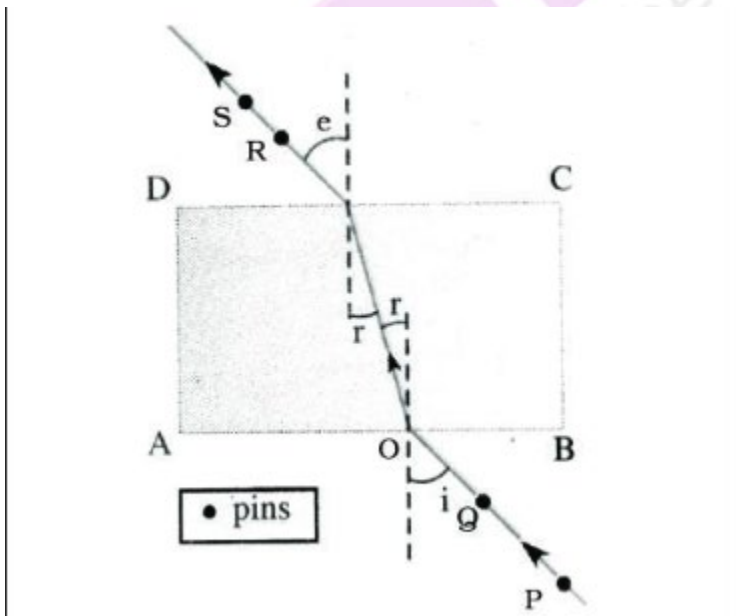
Answer: The procedure of the lab activity are as follows:

Aim: To understand lateral shift of light rays through glass slab.

Material required: Plank, Chart paper, Clamps, Scale, Pencil, Thin glass slab and Pins.

Procedure:

- 1) Place a piece of chart on a plank and clamp it.
- 2) Place a glass slab in the middle of the paper. Draw boarder line along the edges of the slab by using a pencil. Name it as A, B, C, D.
- 3) Draw normal line to AB at mid-point O. Draw an incident ray to the normal with an incident $\angle i$.
- 4) On the incident ray fix the pins at P and Q and looking into the other side fix another two points R, S such that they appear in a straight line.



Observation: The angles of incidence and emergence are equal
($\angle i = \angle e$)

Conclusion:

- 1) The incident and emergent rays (PQ, RS) are parallel.
- 2) Measure the distance between the parallel rays (PQ, RS). This distance is called "Lateral Shift"

OR

Write an activity to know the reaction of bases with metals.

Answer: The reaction of bases with metals can be known by performing the mentioned below activity.

Aim: Reaction of bases with metals.

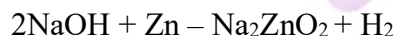
Materials required: Test tube, delivery tube, glass trough, candle, soap water, NaOH solution and Zinc granules.

Procedure

- 1) Place a few granules of zinc metal in a test tube and add 10 ml of sodium hydroxide solution and warm the contents of the test tube.
- 2) Pass the gas being evolved through the soap water.
- 3) Bring a burning candle near the gas filled bubble.

Observations: We will notice the gas evolved burns with a pop sound indicating H_2

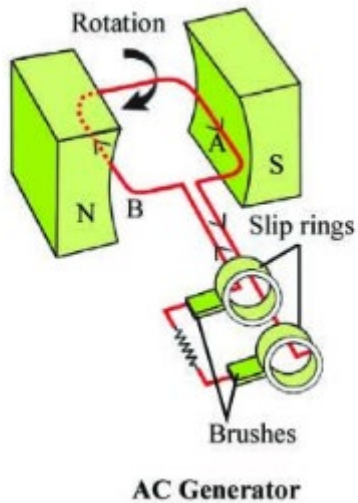
The reaction is written as follows.



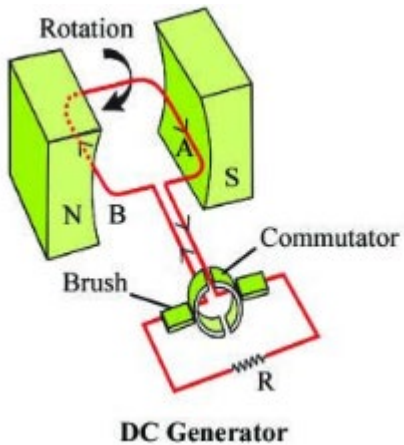
13. Which device is used to convert mechanical energy into electrical energy? Draw a neat diagram and label the parts of this device.

Answer: The device used to convert mechanical energy into electrical energy is AC Generator or DC Generator. The diagram is mentioned below.

AC Generator



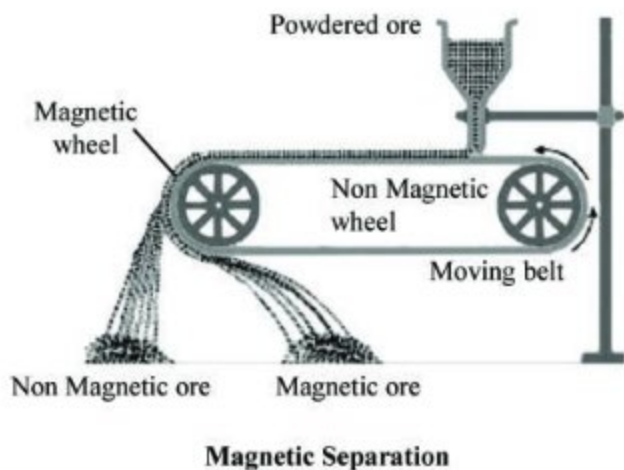
DC Generator



OR

Write the name of the method we use to separate the ore or impurity in which one of them is magnetic substance. Draw a neat diagram indicating the method.

Answer: The name of the method is magnetic separation and the diagram is mentioned below.



14. When water is boiling, its temperature....

- (A) remains constant
- (B) increases
- (C) decreases
- (D) can't say

Answer: A

15. The spoilage of food can be prevented by vitamins like and

- (A) B,C
- (B) C,E
- (C) B,E
- (D) A,E

Answer: B

16. $2\text{PbO} + \text{C} \rightarrow 2\text{Pb} + \text{CO}_2$
(g) (g) (g) (g)

Which of the following statements are correct for the above chemical reaction.

- (i) Lead is reduced
- (ii) Carbon dioxide is oxidized
- (iii) Carbon is oxidized
- (iv) Lead oxide is reduced.

- (A) (i) and (ii)
- (B) (i) and (iii)
- (C) (iii) and (iv)
- (D) (i), (ii), (iii) and (iv)

Answer: (iii) and (iv)

17. Which of the following is not an Olfactory indicator?

- (A) Onion
- (B) Vanilla essence
- (C) Groundnut
- (D) Clove oil

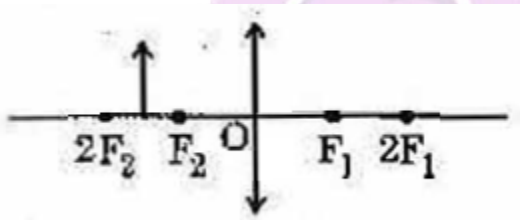
Answer: Groundnut

18. Mirage formed due to

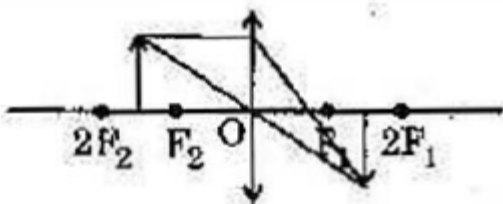
- (A) Dispersion
- (B) Scattering
- (C) Interference
- (D) Total internal reflection

Answer: Total internal reflection

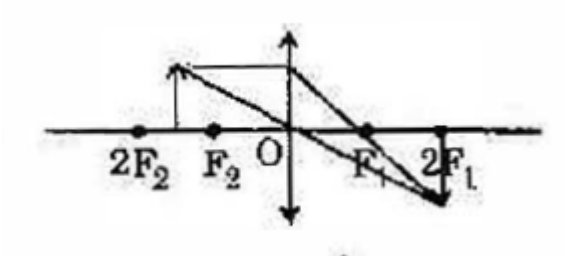
19. The complete ray diagram for the below given picture.



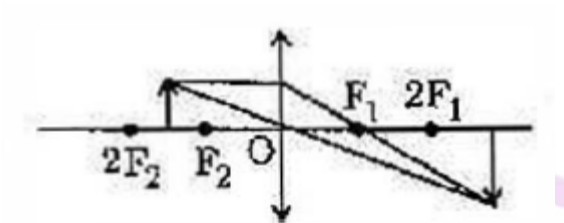
(A)



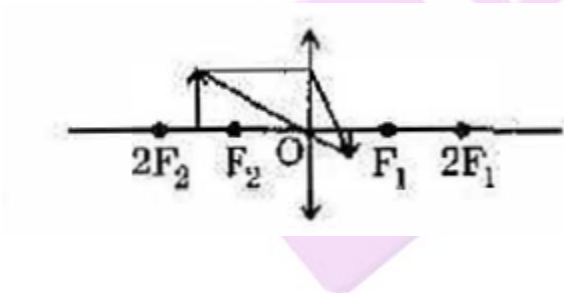
(B)



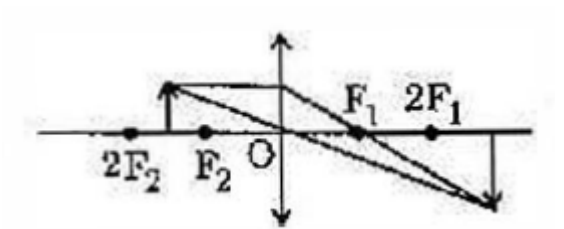
(C)



(D)



Answer:



20. Short sightedness is known asandlens is used to correct the visibility.

- (A) Myopia, Convex
- (B) Hypermetropia, Convex
- (C) Hypermetropia, Concave
- (D) Myopia, Concave.

Answer: Myopia, Concave.

21. The eye lens adjusts its focal length betweencm tocm.

- (A) 22.7; 25
- (B) 2.27; 2.42
- (C) 2.26; 2.5
- (D) 2.27; 2.5

Answer: 2.27; 2.5

22.

1. Between the aqueous humour and the lens, there is a muscular diaphragm	(X) Retina
2. Small hole in a muscular diaphragm, where diaphragm lies between the aqueous humour and the eye lens	(Y) Pupil
3. The place where the image forms at back side of eye ball.	(Z) Iris

- (A) (1) -X, (2) -Y, (3) -Z
- (B) (1) -X, (2) -Z, (3) -Y
- (C) (1) -Z, (2) -X, (3) -Y
- (D) (1) -Z, (2) -Y, (3) -X

Answer: (1) -Z, (2) -Y, (3) -X

23. The scientist who explained splitting of line spectra into finer lines is

- (A) Max Planck
- (B) Sommerfeld
- (C) Moseley
- (D) Lewis

Answer: Sommerfeld.

24. An example for Mendeleev's anomalous series is

- (A) Tellurium, Iodine
- (B) Sodium, Potassium
- (C) Eka Boron, Eka Silicon
- (D) Sodium, Calcium.

Answer: Tellurium, Iodine

25. Among the following, which is more stable?

- (A) Li
- (B) Be
- (C) F
- (D) Ne

Answer: Ne

26. Statement 1: The VSEPR theory proposed by Sidgwick, Powell
Statement 2: The VSEPR theory was further improved by Sidgwick, Gillespie.

- (A) Both 1, 2 are correct
- (B) Only Statement 1 is right
- (C) Only statement 2 is right
- (D) Both statements are false.

Answer: Only Statement 1 is right

27. Among the following, correct pair is

- (A) BeCl_2 – Bond angle 120°
- (B) BF_3 – Bond angle 180°
- (C) NH_3 – Bond angle $104^\circ 27'$
- (D) CH_4 – Bond angle $109^\circ 28'$

Answer: CH_4 – Bond angle $109^\circ 28'$

28. 6Ω , 6Ω , 6Ω are connected in parallel, the resultant resistance is

- (A) $1/6$
- (B) 6
- (C) 18
- (D) 2

Answer: 2

29. The induced current will appear in such a direction that it opposes the change in the flux in the coil, is known as

- (A) VSEPR theory
- (B) Lenz's law
- (C) Faraday's law
- (D) Ohm's law

Answer: Lenz's law

30. SI unit for magnetic flux is

- (A) Weber
- (B) Volt
- (C) Ampere
- (D) Coulomb

Answer: Weber

31. Froth floatation is the method mostly used for the purification ofore.

- (A) Sulphide
- (B) Oxide
- (C) Carbonate
- (D) Nitrate

Answer: Sulphide

32. The general formula of Alkene is

- (A) C_nH_{2n}
- (B) C_nH_{2n+1}
- (C) C_nH_{2n-2}
- (D) C_nH

Answer: C_nH_{2n}

33. Correct order of priority for choosing and naming a principal characteristic.

- (A) $-COOH > -CHO > R-OH > -NH_2 > C=O > COOR$
- (B) $-COOH > -COOR > C=O > OH > -NH_2 > CHO$

(C) $-\text{COOH} > -\text{COOR} > -\text{CHO} > > \text{C} = \text{O} > \text{R} - \text{OH} > -\text{NH}_2$

(D) $-\text{COOH} > -\text{CHO} > -\text{COOR} > \text{C} = \text{O} > \text{R} - \text{OH} > -\text{NH}_2$

Answer: $-\text{COOH} > -\text{COOR} > -\text{CHO} > > \text{C} = \text{O} > \text{R} - \text{OH} > -\text{NH}_2$

