

**BOARD OF SECONDARY EDUCATION (AP)**  
**SUMMATIVE ASSESSMENT – II**  
**TENTH CLASS GENERAL SCIENCE**  
**PHYSICAL SCIENCE MODEL PAPER**  
**PAPER – I (ENGLISH VERSION)**

Time: 2 hrs. 45 mins.

PART – A & B

Maximum Marks: 40

**INSTRUCTIONS:**

- i) In the time duration of 2 hrs. 45 mins. 15 minutes of time is allotted to read and understand the question paper.
- ii) Answer the questions under PART – A on separate answer book.
- iii) Write the answers to the questions under PART – B on the question paper itself and attach it to the answer book of PART – A.

Time: 2 hrs. 15 mins.

PART – A

Marks: 30

**SECTION – I**

**INSTRUCTIONS:**

- i) Answer ALL the questions.
  - ii) Each question carries ONE Mark.
  - iii) Write the answers in 1 – 2 sentences. 4 × 1 = 4
1. Why we use goggles inside the water to see the objects clearly?
  2. Which rule is violated in the electronic configuration of  $1s^0 2s^2 2p^4$ .
  3. Why does the picture in a television appear distorted when a bar magnet is brought near the screen of the television?
  4. Name the simplest Ketone and write its molecular formula.

**SECTION – II**

**INSTRUCTIONS:**

- i) Answer ALL the questions.
  - ii) Each question carries TWO Marks.
  - iii) Answer the questions in 4 – 5 sentences. 5 × 2 = 10
5. Srikanth observed that light is travelling from water to crown glass. The refractive indices of the two are given as, Water: 1.33, Crown glass: 1.52

**Answer the following**

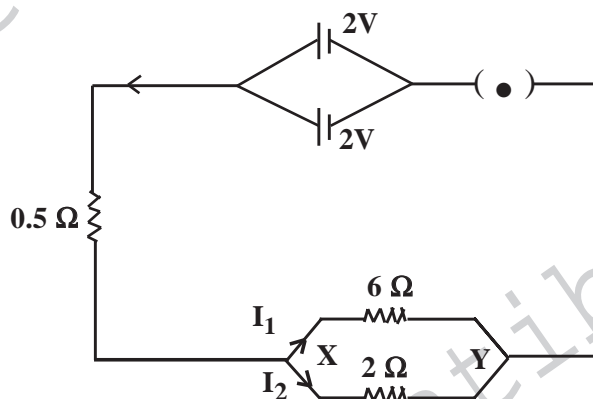
- a) Which is denser medium and which is rarer medium?
- b) What happens when light travels from Crown glass to Water.

6. Explain with the help of a chemical equation, how an addition reaction is used in vegetable ghee industry.
7. If the focal length of a symmetric convergent lens is equal to the radius of curvature of its surface, then find its refractive index.
8. How does non-metallic character change as we move
  - i) down a group and
  - ii) across a period.
9. How could we use the principle of electromagnetic induction in case of using ATM card when its magnetic strip is swiped through a scanner.

### SECTION - III

#### INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries FOUR Marks.
- iii) There is Internal Choice for each question only one option from each question is to be attempted.
- iv) Answer each question in 8 – 10 sentences.  $4 \times 4 = 16$
10. a) Two cells of 2V each are connected in parallel (see the diagram). An external resistance of  $0.5 \Omega$  is connected in series to the junction at two parallel resistors of  $6 \Omega$  and  $2 \Omega$  and then to the common terminal of the battery through each resistor. Calculate.



- i) Total resistance in the circuit.
- ii) Current through  $0.5 \Omega$  resistor.
- iii) Current flowing through  $6 \Omega$  resistor.

(OR)

- b) Soldiers in olden times used to burn ships and tents of opponents by using certain mirrors.
  - i) What are the mirrors used by them?
  - ii) Which energy is utilised to burn?
  - iii) What method is followed by them?
  - iv) With the help of a diagram explain the phenomenon in this?
11. a) Equal lengths of Magnesium ribbons are taken in two test tubes X and Y. Hydrochloric acid is added to test tube X and Acetic acid is added to test tube Y. In which test tube, the reaction will be more vigorous? Why?
  - b) Name the four chemicals that are obtained from common salt and write their molecular formulae.

(OR)

b) Explain the formation of double bond and triple bond according to Lewis Theory.

12. a) Gowri observed that petrol kept in a vessel disappears after some time. Rani heated water in a beaker and turned into water vapour. How would you distinguish between these processes?

(OR)

b) Why should we balance a chemical equation? Take any one chemical equation and explain the procedure of balancing it.

13. a) A person is suffering from certain eye defect. When he contacted the doctor, the doctor told him to wear Concave lens. Then what is the defect from which the person is suffering. Draw a ray diagram to correct that defect by using Concave lens.

(OR)

b) What is a furnace. Mention the main difference between blast furnace and reverberatory furnace. Draw a neat diagram of reverberatory furnace.

## INSTRUCTIONS:

- i) Answer ALL the questions.  
 ii) Each question carries  $\frac{1}{2}$  Mark.  
 iii) Answers are to be written in question paper only.  
 iv) Marks will not be awarded in any case of any over writing and rewriting or erased answers.  
 v) Write the CAPITAL LETTER (A, B, C, D) showing the correct answer for the following questions in the brackets provided against them.

$$20 \times \frac{1}{2} = 10$$

14. Internal energy of a system is ( )  
 1) Potential energy  
 2) Vibrational energy  
 3) Rotational and Linear kinetic energy  
 A) 1 is correct  
 B) 1, 2 and 3 are correct  
 C) 3 is correct  
 D) 1 and 3 are correct
15.  $X.NH_3(aq.) + Cl_2(g.) \longrightarrow N_2H_4 + Y.NH_4Cl$  in this equation X and Y values are ( )  
 A) X = 3, Y = 2  
 B) X = 2, Y = 3  
 C) X = 4, Y = 2  
 D) X = 2, Y = 4
16. A teacher held a pencil close to a spherical mirror and asked four students P, Q, R and S to predict the nature of the mirror with the help of the image formed in the mirror. The image was erect and enlarged.  
 P – Convex in nature      Q – Concave in nature  
 R – Plane mirror          S – Plano Concave mirror  
 The correct statement was given by ( )  
 A) P                              B) Q                              C) R                              D) S
17. Mirage is ( )  
 X) an optical illusion  
 Y) due to denser upper layer and rarer lower layer in the air on the road  
 A) X and Y are true                              B) X is true and Y is false  
 C) X is false and Y is true                      D) Both X and Y are false
18. The lens maker's formula ( )  
 A)  $\frac{1}{f} = (n - 1) \left( \frac{1}{R_1} + \frac{1}{R_2} \right)$   
 B)  $\frac{1}{f} = (n + 1) \left( \frac{1}{R_1} - \frac{1}{R_2} \right)$   
 C)  $\frac{1}{f} = (n + 1) \left( \frac{1}{R_1} + \frac{1}{R_2} \right)$   
 D)  $\frac{1}{f} = (n - 1) \left( \frac{1}{R_1} - \frac{1}{R_2} \right)$
19. Find the odd one out ( )  
 1)  $m = \frac{h}{v\lambda}$                               2)  $h = mv\lambda$                               3)  $m = \frac{v}{h\lambda}$                               4)  $\lambda = \frac{h}{mv}$   
 A) 1                                      B) 3                                      C) 2                                      D) 4

20. Match the following.
- |                       |                                |
|-----------------------|--------------------------------|
| 1) s – block elements | P) Inner transition elements   |
| 2) f – block elements | Q) Transition elements         |
| 3) d – block elements | R) Representative elements ( ) |
| A) 1-R, 2-Q, 3-P      | B) 1-Q, 2-P, 3-R               |
| C) 1-R, 2-P, 3-Q      | D) 1-P, 2-Q, 3-R               |
21. Put these in a systematic order. ( )
- |                    |                     |                   |                   |
|--------------------|---------------------|-------------------|-------------------|
| i) Ionic bond      | ii) Directional     |                   |                   |
| iii) Covalent bond | iv) Non-directional |                   |                   |
| A) i, iv, iii, ii  | B) i, ii, iii, iv   | C) ii, i, iv, iii | D) iv, ii, iii, i |
22. Two resistors each of resistance 1  $\Omega$  and 99  $\Omega$  respectively are connected in parallel. The equivalent resistance is ( )
- |                 |                 |                     |                   |
|-----------------|-----------------|---------------------|-------------------|
| i) 100 $\Omega$ | ii) 98 $\Omega$ | iii) 0.001 $\Omega$ | iv) 0.99 $\Omega$ |
| A) i            | B) iv           | C) iii              | D) ii             |
23. The magnetic force on a current carrying wire placed in uniform magnetic field if the wire is oriented perpendicular to magnetic field, is ( )
- |      |                    |          |        |
|------|--------------------|----------|--------|
| A) 0 | B) $\frac{ILB}{2}$ | C) 2 ILB | D) ILB |
|------|--------------------|----------|--------|
24. Which of the following is not crystalline form of Carbon ( )
- |            |                         |
|------------|-------------------------|
| A) Coke    | B) Graphite             |
| C) Diamond | D) Buckminsterfullerene |
25. Yellow light is produced by Sodium vapours. Green colour flame is produced by ( )
- |                       |                       |
|-----------------------|-----------------------|
| A) Strontium chloride | B) Cupric chloride    |
| C) Mercury            | D) Potassium chloride |
26. Students a, b, c and d measured the pH values of water, Sodium bicarbonate and lemon juice and wrote them in descending order, who among them has identified correctly? ( )
- |   |
|---|
| A) water > lemon juice > Sodium bicarbonate |
| B) lemon juice > water > Sodium bicarbonate |
| C) Sodium bicarbonate > water > lemon juice |
| D) water > Sodium bicarbonate > lemon juice |
27. A lens has a power of 0.5 D it is ( )
- |                                      |                                       |
|--------------------------------------|---------------------------------------|
| A) Convex lens of focal length 5 m   | B) A Concave lens of focal length 5 m |
| C) A Convex lens of focal length 2 m | D) A Concave lens of focal length 2 m |
28. A rectangular coil of Copper wire is rotated in a magnetic field. The direction of the induced current changes once in each ( )
- |                    |                            |
|--------------------|----------------------------|
| A) one revolution  | B) one – fourth revolution |
| C) half revolution | D) two revolutions         |

29. Saturated hydrocarbons participate in ..... reactions. ( )  
A) Addition B) Substitution  
C) Elimination D) Rearrangement
30. If  $l = 3$ , number of values for  $m_l$  is .... ( )  
A) 1 B) 3 C) 5 D) 7
31. This is suitable for use in the heating elements of electric stove ( )  
A) Nichrome B) Copper C) Nickel D) Iron
32. Match the following. ( )  
1) Magnifying stars P) Concave lens  
2) Myopia Q) Double Convex lens  
3) Dispersion R) Prism  
A) 1-P, 2-Q, 3-R B) 1-R, 2-P, 3-Q  
C) 1-Q, 2-P, 3-R D) 1-R, 2-Q, 3-P
33. The disaster caused due to an overload can be avoided by using ( )  
A) an ammeter B) a fuse C) a switch D) a voltmeter

**PART – B**

**ANSWERS**

14-B; 15-C; 16-B; 17-A; 18-D; 19-B; 20-C; 21-A; 22-B; 23-D; 24-A; 25-B; 26-C; 27-C; 28-B; 29-B; 30-D; 31-A; 32-C; 33-B

Writer: C.V. Sarveswara Sarma