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. What is exothermic reaction? Give example.

2. If light rays are incident on an air bubble inside water, why the light rays diverge?

3. Write the names of any two compounds which have ionic bond.

4. Why do we consider tungsten as a suitable material for making the filament of a bulb?

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. Name the four chemicals that are obtained from common salt, and write their molecular formulae.

6. Suggest reasons for the phenomenon associated with the following

i) The sky appearing blue

ii) Twinkling of stars

7. A metal ring which is slightly greater in radius than a solenoid is inserted through the solenoid and connected the two ends of the solenoid to a D.C. source. It is observed that the metal ring lights up and falls down immediately. Predict and write the reason.

8. The atomic number of an element is 35. Where would you expect the position of this element in the periodic table? Why?

9. Draw the structure of the methane molecule. Write its bond angle.

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 × 4 = 16**

10. **a)** What is Hybridisation? Explain the formation of BeF_2 molecule using hybridisation.

(OR)

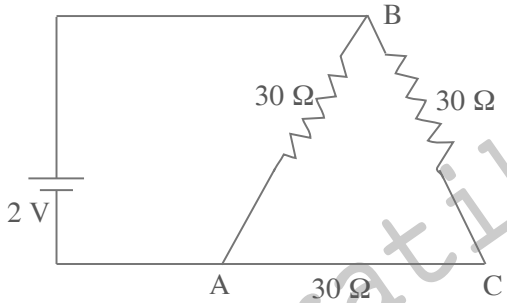
b) Alkanes are considered as Paraffins. So they undergo substitution reactions but not addition reactions. Explain with suitable example.

11. **a) i)** Describe a setup showing how you heat a utensil by using solar energy and mirrors.

ii) An object of 6 cm height is placed at a distance of 30 cm. infront of a concave mirror of focal length 10 cm. At what distance from the mirror, will the image be formed? What are the characteristics of the image?

(OR)

b) Find the equivalent resistance between any two terminals and find the total current flowing through the circuit.



12. **a)** State the methods used for the purification of crude metals. Explain in which context these methods are used.

(OR)

b) i) $N_{2(g)} + O_{2(g)} \longrightarrow 2\,NO_{(g)}$

What information do you get from the above equation? Comment.

ii) Write an activity about how you conduct an experiment to show that more reactive metals replace less reactive metals from their compounds.

13. **a)** A student conducted an experiment with a biconvex lens and prepared the following table.

Object distance in cm	70	60	50	40	30
Image distance in cm	14.5	15.2	16.2	17	20
Focal length in cm	12.01	12.12	12.13	11.92	12

i) What could be the reason for different focal lengths in the above table?

ii) How will you decide the focal length of the above lens? What is its value?

iii) Can you measure the image distance making the object distance 10 cm? Why?

(OR)

a) Ravi wears a spectacle. From that his eyes observed to be bigger in size.

i) What lens is used by him?

ii) What is the eye defect he is suffering from? Draw the ray diagram of the defect and explain.

Time: 30 Minutes **PART – B** **Marks: 10**

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. When ice melts, its temperature ( )

A) remains constant B) increases

C) decreases D) cannot say

15. Burning of magnesium crackers is a reaction of ( )

A) Reduction B) Cracking C) Oxidation D) Galvanising

16. We get a diminished image with a concave mirror when the object is placed ( )

A) at F B) between the pole and F

C) at C D) beyond C

17. Which one of the following metals reacts both with acid and base and releases hydrogen gas ( )

A) Na B) Fe C) Zn D) Cu

18. A solution turns red litmus blue, its pH is likely to be ( )

A) 10 B) 1 C) 4 D) 5

19. At critical angle of incidence, the angle of refraction is ( )

A) 45° B) 90° C) 30° D) 180°

20. Focal length of the plano-convex lens is ..... when its radius of curvature of the surface is R and n is the refractive index of the material of the lens. ( )

A) f = R B) $f = \frac{R}{2}$ C) $f = \frac{(n-1)}{R}$ D) $f = \frac{R}{(n-1)}$

21. During refraction ..... will not change. ( )

A) Wave length B) Frequency C) Speed of light D) All of the above

22. The far point of a myopia eye is 1.5 m. To correct this defect of the eye, the power of lens is ( )

A) 0.66 D B) –0.66 D C) +1.5 D D) –1.55 D

23. Electrons enter ..... orbital after filling the 3d orbital ( )

A) 4s B) 5s C) 4p D) 5p

24. Which one of the following elements belong to 3^{rd} period and III A group ( )

A) Sodium B) Potassium C) Aluminium D) Argon

25. Match the following. ( )

i) Resistance	P) Ohm-meter
ii) Potential difference	Q) Ampere
iii) Specific resistance	R) Ohm
iv) Current	S) Volt

A) i-S, ii-Q, iii-R, iv-P B) i-Q, ii-S, iii-P, iv-R

C) i-S, ii-Q, iii-P, iv-R D) i-R, ii-S, iii-P, iv-Q

26.

Effect	Current in ampere
P	0.001
Q	0.005
R	0.015
S	0.010

This current passing through our body causes spasms ( )

A) P B) S C) Q D) R

27. Which of the following elements is electronegative? ( )

A) Sodium B) Magnesium C) Oxygen D) Calcium

28. Valence bond theory was proposed by ( )

A) Linus Pauling B) Bohr

C) Lewis D) Sidgwick and Powell

29. The magnetic force (F) on a current (I) carrying wire of length (L) placed in uniform magnetic field (B) if the wire is oriented perpendicular to the magnetic field, is ( )

A) O B) $\frac{ILB}{2}$ C) 2ILB D) ILB

30. The metal that occurs in the native form is ( )

A) Pb B) Au C) Fe D) Hg

31. Combustion of hydrocarbons is generally accompanied by the evolution of ( )

A) Heat B) Light

C) Both heat and Light D) Electric current

32. Bond angle in methane is ( )

A) 104°.31' B) 107°.48' C) 180° D) 109°.28'

33. Pentane is ( )

A) C_5H_{12} B) C_5H_{10} C) C_5H_8 D) C_5H_6

PART - B ANSWERS

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