This Question Paper contains 4 Printed Pages.

19E(A)

GENERAL SCIENCE, Paper - I

(Physical Science)

(English version)

Parts A and B

Time : 2 hrs. 45 min.] **[Maximum Marks : 40**

Instructions :

1. *This paper contains **Part-A** and **Part-B**.*
2. *Answer the questions under **Part-A** on separate answer book. Write the answers to the questions under **Part-B** on the question paper itself and attach it to the answer book of **Part-A**.*
3. *Answer **all** the questions. Internal choice is given to the questions under Section- III.*
4. *In the duration of 2.45 hrs., 15 minutes of time is allotted to read the Question paper.*

Part - A

Time : 2 hours ***Marks : 30***

Instructions :

(i) **Part-A** comprises **Three** sections **I, II** and **III**.

(ii) **All** the questions are **compulsory**.

(iii) There is no over-all choice. However, there is an internal choice to the questions under section-III.

SECTION - I

$4 \times 1 = 4$

NOTE : *(i) Answer **all** the questions.*

(ii) Answer each question in 1 or 2 sentences.

*(iii) Each question carries **ONE** mark.*

1. Let heat is not 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.

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

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

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 ?

SECTION - II

5×2=10

NOTE : *(i)* Answer **all** the questions

(ii) Answer each question in 4 or 5 sentences.

(iii) Each question carries **Two** marks.

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

Time → / City ↓	At 6 AM	At 11.30 AM	At 6 PM
A	– 3° C	300 K	5°C
B	271 K	27° C	270 K

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 ?

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.

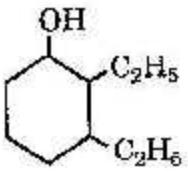
(a) Which mirror she used for this experiment ?

(b) Write any two characteristics of the image formed at this magnification value.

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 ?

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}

9. 

   Based on the diagram, answer the following.

   (1) Write the name of the compound.

   (2) Write the name of functional group in the structure.

SECTION - III

4×4=16

NOTE : *(i) Answer **all** the questions.*

(ii) Answer each question in 8-10 sentences.

(iii) There is internal choice for each question.

(iv) Only one option from each question is to be attempted.

*(v) Each question carries **FOUR** marks.*

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

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.

11. $2Al + Fe_2O_3 \rightarrow Al_2O_3 + 2Fe$

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

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

OR

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

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

OR

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

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

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.

This Question Paper contains 4 Printed Pages.

19E(B)

GENERAL SCIENCE, Paper - I

(Physical Science)

(English version)

Parts A and B

Time : 2 hrs. 45 min.] ***[Maximum Marks : 40***

Instruction : *Write the answers to the questions in this **Part-B** on the Question paper itself and attach it to the answer book of **Part-A**.*

Part B

Time : 30 min. ***Marks : 10***

SECTION - IV *20×½=10*

NOTE :

1. *Answer **all** the questions.*
2. *Each question carries ½ mark.*
3. *Marks will **not** be awarded in any case of over-written, rewritten or erased answers.*
4. *Write the CAPITAL LETTER (A, B, C, D) showing the correct answer for the following questions in the brackets provided against them.*

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

(A) remains constant (B) increases

(C) decreases (D) can't say

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

(A) B, C (B) C, E

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

16. $2PbO_{(s)} + C_{(s)} \rightarrow 2Pb_{(s)} + CO_{2(g)}$ [ ]

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)*

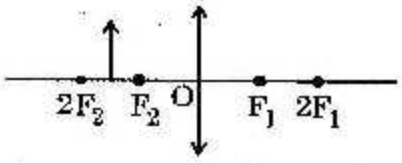
17. Which of the following is not an Olfactory indicator ? [ ]

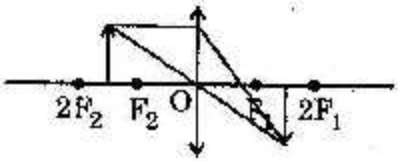
(A) Onion (B) Vanilla essence
(C) Groundnut (D) Clove oil

18. Mirages formed due to ... [ ]

(A) Dispersion (B) Scattering
(C) Interferance (D) Total internal reflection

19. The complete ray diagram for ... [ ]



(A)


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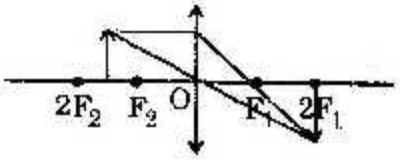

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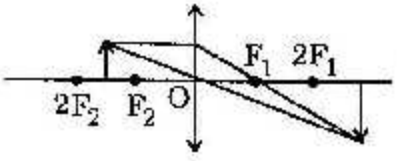

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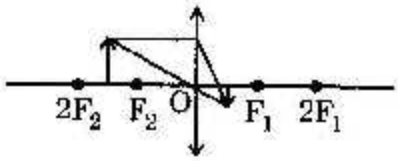

20. Short sightedness is known as ..... and ..... lens is used to correct the visibility. [ ]

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

21. The eye lens adjusts its focal length between .... cm to ... cm. [ ]

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

22. Match the following. [ ]

(1)	Between the aqueous humour and the lens, there is a muscular diaphragm.	(X) Retina
(2)	Small hole in a muscular diaphragm, where diaphram 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

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

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

24. An example for Mendeleev's anomalous series is ... [ ]

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

25. Among the following, which is more stable ? [ ]

(A) Li (B) Be
(C) F (D) 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.

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° 27′ (D) CH_4 - Bond angle 109° 28′

28. 6Ω, 6Ω, 6Ω are connected in parallel. the resultant resistance is .... [ ]
(A) $\frac{1}{6}$ (B) 6
(C) 18 (D) 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

30. SI unit for magnetic flux is ... [ ]
(A) Weber (B) Volt
(C) Ampere (D) Coulomb

31. Froth floatation is the method mostly used for the purification of ... ore. [ ]
(A) Sulphide (B) Oxide
(C) Carbonate (D) Nitrate

32. The general formula of Alkene is ..... [ ]
(A) C_nH_{2n} (B) C_nH_{2n+1}
(C) C_nH_{2n-2} (D) C_nH

33. Correct order of priority for choosing and naming a principal characteristic. [ ]
(A) $-COOH > -CHO > R-OH > -NH_2 > C=O > COOR$
(B) $-COOH > -COOR > C=O > R-OH > -NH_2 > CHO$
(C) $-COOH > -COOR > -CHO > > C=O > R-OH > -NH_2$
(D) $-COOH > -CHO > -COOR > C=O > R-OH > -NH_2$