19E(A)

GENERAL SCIENCE Paper – I

MARCH 2008

Parts A and B

[Maximum Marks: 50 Time: 2½ Hours]

Instructions:

1. Answer the questions under **Part-A** on a separate answer book.
2. Write the answers to the questions under **Part-B** on the question paper itself and attach it to the answer book of **Part-A**.

PART – A

Time: 2 Hours **Marks: 35**

SECTION – I *(Marks: 5x2=10)*

NOTE:

1. Answer **ANY FIVE** questions, choosing **at least TWO** from each of the following two groups.
2. Each question carries **TWO** marks.

GROUP – A

1. What are the similar characteristics of Centripetal and Centrifugal forces?
2. Explain why ferromagnetic substance like iron rod is not a magnet by itself? Explain on the basis of Domain Theory.
3. Explain the process of Electrotyping.
4. What are the uses of Junction Transistor?

GROUP – B

5. The energy level of '3d' is greater than '4s'. Give reason.
6. Draw the bond formation of F_2 molecule.
7. Copper Sulphate is soluble in water, but not in Kerosene. Give reason.
8. What are the characteristics of good quality face powder?

SECTION – II *(Marks 4x1=4)*

Note:

1. Answer **ANY FOUR** questions from the following.
2. Each question carries **ONE** mark.

9. Why 'g' value decreases when we go deep into the earth?
10. What is Resonance?
11. State the law of Radio-active decay.
12. Define Atomic Radius.
13. What is the use of adding cullet to the raw material of glass?
14. Define Heat of Neutralization.

SECTION – III *(Marks 4x4=16)*

Note:

1. Answer **ANY FOUR** questions, choosing at least **TWO** from each group.
2. Each question carries **FOUR** marks.

GROUP – A

15. What are the important applications of LASER light in Medicine, Industry and Space Science?
16. Define Joule's law and derive $Q = \frac{i^2Rt}{J}$.
17. Explain with a neat diagram, the emission of radiations from a radio-active substance.
18. Draw the block diagram of a computer and explain the functions of each component.

GROUP – B

19. Define Ionisation Energy and mention the factors that influence Ionisation Energy.
20. Explain the formation of co-ordinate covalent bond with an example.
21. What is Modern Periodic law? Explain its main features.
22. What are the differences in the manufacturing of Soap and Detergent?

SECTION – IV *(Marks 1x5=5)*

Note:

1. Answer **ANY FOUR** questions, choosing at least **TWO** from each group.
2. Each question carries **FOUR** marks.

23. What is the instrument you use in the laboratory to find out the thickness of a glass state? Draw a neat diagram and label its parts.
24. Draw the block diagram of manufacture of Alcohol and label the parts.

19E(B)

PART – B

Time: 30 minutes ***Marks: 15***

Note:

1. Answer all the questions.
2. Each question carries ½ mark.
3. Candidates must use the CAPITAL LETTERS while answering the multiple choice questions.
4. Marks will not be awarded in case of any over-writing, re-writing or erased answers.

I. Pick out the correct answer and fill in the blanks with the CAPITAL LETTER of the correct answer chosen.

10 x ½ =5

1. Units of 'G' in S.I. system.
   (A) Nm^2Kg^{-2} (B) N/Kg (C) Kg/Nm^2 (D) Nm^2/Kg
2. The time for which a body remains in air is called
   (A) Time of ascent (B) time of descent (C) time of flight (D) free time
3. Electro-magnetic radiations with shortest wavelength are
   (A) Infra-red (B) Gamma rays (C) Ultraviolet rays (D) X-rays
4. Periodic vibrations of decreasing amplitude are called
   (A) Forced vibrations (B) Natural vibrations (C) Stationary vibrations (D) damped vibrations
5. The equivalent resistance when two resistors of 8 Ω each are connected in parallel,
   (A) 2 Ω (B) 8 Ω (C) 16 Ω (D) 4 Ω
6. The number of 'm' values for $l = 3$ is,
   (A) 7 (B) 4 (C) 2 (D) 3
7. Carnallite is
   (A) $MgCO_3.CaCO_3$ (B) $MgCl_2.KCl.6H_2O$ (C) $CaSO_4.3H_2O$ (D) $MgCO_3.2H_2O$
8. An example of Auxochrome is
   (A) $-NO$ (B) $-NO_2$ (C) $-SO_3H$ (D) $C = S$
9. Molecular weight of Na_2CO_3 is
   (A) 126 (B) 106 (C) 120 (D) 130
10. Dry ice is
(A) Solid Carbon di-oxide (B) Solid Carbon monoxide (C) Solid Carbonic acid (D) Solid Carbon tetrachloride

I. Fill in the blanks with suitable answers.

11. The value of magnetic permeability of free space is ……
12. The magnetic moment of a bar magnet of length 5 cm. with pole strength 2×10^3 ampere-meter is ……..
13. The speed of electromagnetic radiations is …….
14. The sign of 'g' is taken as …….. when a body is thrown upwards.
15. The unit of solid angle (Ω) is ……
16. Polymeric organic substance is commonly known as ……
17. The value of K_ω changes with change in ……
18. Glass blowing is possible with …… glass.
19. …… is used as refrigerator lining.
20. The general formula of Alkynes is ……

II. Match the following by writing the letter of the correct answer in the brackets, choosing from the Group – B.

PHYSICS

(i) Group – A		**Group – B**
1. β - rays	[……]	(A) High ionisation
2. γ - rays	[……]	(B) Same mass numbers but different atomic numbers
3. Isotopes	[……]	(C) Electromagnetic radiations
4. α - rays	[……]	(D) Electrons originating in the nucleus
5. Isobars	[……]	(E) Same atomic numbers but different mass numbers

CHEMISTRY

(ii) Group – A		**Group – B**
6. Dimethyl ether	[……]	(A) CH_3Cl
7. Acetylene	[……]	(B) C_6H_{10}
8. Chloro methane	[……]	(C) C_2H_2
9. Benzene	[……]	(D) $CH_3 - O - CH_3$
10. Hexyne	[……]	(E) C_6H_6

********** END **********