

Version No.			

ROLL NUMBER						



0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

0	0	0	0	0	0	0
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

Answer Sheet No. \_\_\_\_\_

Sign. of Candidate \_\_\_\_\_

Sign. of Invigilator \_\_\_\_\_

**PHYSICS SSC–II**  
**SECTION – A (Marks 12)**  
**Time allowed: 15 Minutes**

Section – A is compulsory. All parts of this section are to be answered on this page and handedover to the Centre Superintendent. Deleting/overwriting is not allowed. **Do not use lead pencil.**

**Q.1 Fill the relevant bubble for each part. All parts carry one mark.**

- (1) In vacuum, all electromagnetic waves have the same:
 

A. Speed	B. Amplitude
C. Frequency	D. Wavelength
- (2) The relationship between speed, frequency and wavelength of a wave is known as:
 

A. Wave equation	B. Frequency equation
C. SHM equation	D. Wavelength equation
- (3) Which of the following forms of wave is “sound”?
 

A. Electrical	B. Longitudinal
C. Transverse	D. Magnetic
- (4) If a ray of light in a glass is incident on an air surface at an angle greater than the critical angle, the ray will:
 

A. Refract only	B. Reflect only
C. Partially reflect & refract	D. Diffract only
- (5) According to Coulomb’s law, if distance between charges increases, the force of attraction:
 

A. Will be increased	B. Will be decreased
C. Will be unchanged	D. Will become repulsion
- (6) When we apply more voltage to an ohmic conductor, we get:
 

A. More resistance	B. More flow of current
C. Decrease in power	D. Less flow of current

- (7) Electromagnetism is the study of:  
A. Magnetic effect of current      B. Flow of protons  
C. Flow of electrons                  D. Flow of neutrons
- (8) Logic gates are used in:  
A. LDRs                                      B. DC circuits  
C. Analogue circuits                      D. House safety
- (9) Which one of the following is the most suitable means of reliable continuous communication between an orbiting satellite and Earth?  
A. Microwaves                              B. Radio waves  
C. Sound waves                             D. Any light wave
- (10) Which one of the following particles has the greatest penetrating power?  
A.  $\alpha$ - Particle                            B.  $\beta$ - Particle  
C.  $\gamma$ - Particle                              D. Proton
- (11) What is the voltage across a  $6 \Omega$  resistor when  $3A$  of current passes through it?  
A.  $2 V$                                         B.  $9 V$   
C.  $18 V$                                         D.  $36 V$
- (12) If the turn ratio of a step-up transformer is  $10$ . It means:  
A.  $I_s = 10 I_p$                               B.  $N_s = \frac{N_p}{10}$   
C.  $N_s = 10 N_p$                              D.  $V_p = 10V_s$
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Federal Board SSC-II  
Examination Physics Model  
Question Paper (Curriculum 2006)

Time allowed: 2.45 hours

Total Marks: 53

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Note: Answer all parts from Section 'B' and all questions from Section 'C' on the **E-sheet**.  
Write your answers on the allotted/given spaces.

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**SECTION – B (Marks 33)**

**Q.2** Attempt all parts from the following. All parts carry equal marks. (11×3=33)

- i. A pendulum of length 1m and period 2.01s is placed at the top of Mount Everest having an altitude of 8849m. Calculate the value of 'g' at that point.
- ii. If the concave mirror produces a real image of an object, will the image be necessarily inverted?

**OR**

What spectacles will be used by a person suffering from far sightedness?  
Draw diagram to show correction of this problem.

- iii. How can a body be negatively charged by electrostatic induction?

**OR**

Describe three uses of capacitors in various electric appliances.

- iv. Plane waves in ripple tank undergo refraction when they move from deep to shallow water. What changes occur in:
  - a. Speed of waves
  - b. Frequency of waves
  - c. Wavelength of waves

**OR**

Sound produced on sun is not heard on earth, why?

- v. Will two wires carrying current in the same direction repel or attract each other? Give reason. Show it by a diagram.
- vi. How is an ammeter connected with a device to measure current? Support your answer with reason.
- vii. What do you understand by digital and analogue quantities?

**OR**

Which one is more reliable to store data: floppy disc or hard disc? Briefly explain.

- viii. An electric kettle is rated as 2.5 kW, 230 V. Determine a suitable current rating of the fuse to put in the three-pin plug. Choose from 1A, 5 A, 13 A, 30 A and briefly explain.

- ix. Explain whether the atomic number can increase during nuclear decay. Support your answer with an example.
- x. Why is an electron beam deflected when passes through a magnetic field?

**OR**

- How can we find the direction of magnetic field of a current carrying conductor?
- xi. Lead-210 has half-life of 22.3 years. How much of the 80 mg of lead will be left after 66.9 years?

### SECTION – C (Marks 20)

**Note:** Attempt all questions. Marks of each question are given within brackets. (4 x5=20)

- Q.3** What is compound microscope? Describe it by drawing Ray Diagram and write formula for its magnification. (1+2+2)

**OR**

What is total internal reflection? Describe the use of this phenomenon in optical fibers and endoscopy. (1+2+2)

- Q.4** An electric bulb is marked with 220 V, 50 W. Find the resistance of the filament of the bulb. If the bulb is used 5 hours daily, find the energy in kilowatt-hour consumed by the bulb in one month (30 days). (2+3)

**OR**

A transformer is used to produce an output of 6V from 220V main supply. Primary coil of the transformer has 2000 turns. Calculate the number of turns in the secondary coil. (5)

- Q.5** Explain nuclear fission reaction in detail along with diagram and nuclear equation. (1+1+3)

**OR**

Discuss the main features of parallel combination of resistors. (1+2+2)

- Q.6** An object of size 3 cm is placed at a distance of 15 cm from a convex lens. Focal length of lens is 10 cm. Find the position, nature and size of image. (2+1+2)

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**PHYSICS SSC-II**  
**MODEL QUESTION PAPER SLOs**  
**(Curriculum 2006)**

**SECTION – A**

**Q.1 Choose the correct answer A/B/C/D by filling the relevant bubble for each question.**

- (1) Distinguish between mechanical and electromagnetic waves.
- (2) Derive equation  $v=f\lambda$ .
- (3) Describe the longitudinal nature of sound waves (as a series of compressions and rarefactions).
- (4) State the conditions for total internal reflection.
- (5) State and explain Coulomb's law.
- (6) Describe Ohm's law and its limitations.
- (7) Explain by describing an experiment that an electric current in a conductor produces a magnetic field around it.
- (8) Describe the simple uses of logic gates.
- (9) Explain briefly the transmission of
  - a. electric signals through wires
  - b. radiowaves through air
  - c. light signals through optical fibres
- (10) State, for radioactive emissions:
  - a. their nature
  - b. their relative ionizing effects
  - c. their relative penetrating abilities.
- (11) Describe Ohm's law and its limitations.
- (12) Identify that a transformer works on the principle of mutual induction between two coils.

**SECTION-B**

**Q.2 Attempt all parts from the following. All parts carry equal marks. (11×3=33)**

- i. Solve problems by using the formula  $T = 2\pi\sqrt{l/g}$  for simple pendulum.
- ii. Solve problems of image location by spherical mirrors by using mirror formula.
- iii. Describe experiments to show electrostatic charging by induction.
- iv. Describe properties of waves such as reflection, refraction and diffraction with the help of ripple tank.

**OR**

Explain how sound is produced by vibrating sources and that sound waves require a material medium for their propagation.

- v. Explain by describing an experiment that an electric current in a conductor produces a magnetic field around it.
- vi. Describe the use of electrical measuring devices like galvanometer, ammeter and voltmeter (construction and working principles not required).
- vii. Differentiate between analogue and digital electronics.

**OR**

Describe the use of information storage devices such as audio cassettes, video cassettes, hard disk, floppy, compact disks and flash drive.

- viii. Apply the equations  $E = VIt = I^2Rt = V^2t/R$  to solve numerical problem.
- ix. Represent changes in the composition of the nucleus by symbolic equations when alpha or beta particles are emitted.
- x. Describe the effect of magnetic field on an electron beam.

**OR**

- Describe that force acts on a current carrying conductor placed in a magnetic field as long as the conductor is not parallel to magnetic field.
- xi. Explain the meaning of half-life of radioactive material.

### SECTION-C

**Attempt all questions from the following. All parts carry equal marks (4x5=20)**

- Q.3** Draw a ray diagram of compound microscope and mention its magnifying power.

**OR**

Describe how total internal reflection is used in light propagation through optical fibre.

- Q.4** Calculate the cost of energy when given the cost per kWh.

**OR**

Identify that a transformer works on the principle of mutual induction between two coils

- Q.5** Describe briefly the processes of fission and fusion.

**OR**

Calculate the effective resistance of a number of resistances connected in series and also in parallel.

- Q.6** Solve problems of image location by lenses using lens formula.

**PHYSICS SSC-II**  
**TABLE OF SPECIFICATION**

Assessment Objectives	Unit 10:	Unit 11:	Unit 12:	Unit 13:	Unit 14:	Unit 15:	Unit 16:	Unit 17:	Unit 18:	Total marks	Percentage
Knowledge based	Q 1 (1): 1 Q 1 (2): 1	Q 1(3): 1			Q 2 (vii): 3 Q 4(a): 6	Q1(7): 1 Q2(xiv): 3	Q4(b): 4 Q2(ix): 3	Q1(9): 1	Q1(10): 1	25	28.7%
Understanding based	Q2(i): 3 Q2(iii): 3	Q 2 (v): 3	Q1(4): 1 Q2(ii): 3 Q3(b): 4	Q 1 (5): 1 Q 3 (a): 6	Q 1(11): 1	Q2(vi): 3 Q5 (a): 6	Q 1(8): 1 Q2(xiii): 3		Q2(x): 3 Q5(b): 4	45	51.7%
Application based				Q 2(iv): 3	Q 1(6): 1 Q 2(viii): 3	Q 1(12): 1 Q2(xv): 3		Q 2 (xi): 3	Q2(xii): 3	17	19.5%
Total marks	8	4	8	10	14	17	11	4	11	87	100%

**KEY:**

1 (1): 1

Question No (Part No.): Allocated Marks