

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

ISLAMABAD

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 handed over 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 | <input type="radio"/> | B. DC circuits | <input type="radio"/> |
| C. Analogue circuits | <input type="radio"/> | D. House safety | <input type="radio"/> |
- (9) Which one of the following is the most suitable means of reliable continuous communication between an orbiting satellite and Earth?
- | | | | |
|----------------|-----------------------|-------------------|-----------------------|
| A. Microwaves | <input type="radio"/> | B. Radio waves | <input type="radio"/> |
| C. Sound waves | <input type="radio"/> | D. Any light wave | <input type="radio"/> |
- (10) Which one of the following particles has the greatest penetrating power?
- | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|
| A. α - Particle | <input type="radio"/> | B. β - Particle | <input type="radio"/> |
| C. γ - Particle | <input type="radio"/> | D. Proton | <input type="radio"/> |
- (11) What is the voltage across a $6\ \Omega$ resistor when 3A of current passes through it?
- | | | | |
|------------------|-----------------------|------------------|-----------------------|
| A. 2 V | <input type="radio"/> | B. 9 V | <input type="radio"/> |
| C. 18 V | <input type="radio"/> | D. 36 V | <input type="radio"/> |
- (12) If the turn ratio of a step-up transformer is 10 . It means:
- | | | | |
|-------------------|-----------------------|---------------------------|-----------------------|
| A. $I_s = 10 I_p$ | <input type="radio"/> | B. $N_s = \frac{N_p}{10}$ | <input type="radio"/> |
| C. $N_s = 10 N_p$ | <input type="radio"/> | D. $V_p = 10V_s$ | <input type="radio"/> |
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Federal Board SSC-II Examination
Physics Model Question Paper
(Curriculum 2006)

Time allowed: 2.45 hours

Total Marks: 53

Note: Answer any eleven parts from Section 'B' and attempt any two questions from Section 'C' on the separately provided answer book. Write your answers neatly and legibly.

SECTION – B (Marks 33)

Q.2 Attempt any **ELEVEN** 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?
- iii. Is the restoring force on a mass attached to spring in SHM ever zero? If so, where?
- iv. How can a body be negatively charged by electrostatic induction?
- v. Does increasing the frequency of wave also increases its wavelength? If not, how are these quantities related?
- vi. Will two wires carrying current in the same direction repel or attract each other? Give reason.
- vii. Write down differences between conductors and insulators.
- viii. How is an ammeter connected with a device to measure current? Support your answer with reason.
- ix. What do you understand by digital and analogue quantities?
- x. Why are some elements radioactive but some are not?
- xi. How electronic mail is preferred over traditional communication?
- xii. Explain whether the atomic number can increase during nuclear decay. Support your answer with an example.
- xiii. Why is an electron beam deflected when passes through a magnetic field?
- xiv. How can we find the direction of magnetic field of a current carrying conductor?
- xv. Describe electrostatic painting of cars.

SECTION – C (Marks 20)

Note: Attempt any **TWO** questions. All questions carry equal marks. (2 × 10 = 20)

- Q.3** a. With the help of electroscope, how can you achieve the following: **(3×2=6)**
- i. The detection of charge on a body.
 - ii. Determining the nature of charge.

- iii. Investigating whether the body under test is conductor or insulator.
- b. An object is placed at a distance of 20cm in front of a convex mirror forms an image 10cm behind the mirror. What is its focal length? (4)
- Q.4** a. Discuss the main features of parallel combination of resistors. (6)
- b. What are the basic Logic Gates? Give symbols and truth tables of any two. (4)
- Q.5** a. Explain the working of transformer in connection with mutual induction. Describe types of transformer. (6)
- b. Lead-210 has half-life of 22.3 years. How much of the 80 mg of lead will be left after 66.9 years? (4)

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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 any ELEVEN 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. Explain SHM with different examples.
- iv. Describe experiments to show electrostatic charging by induction.
- v. Derive equation $v=f\lambda$.
- vi. Explain by describing an experiment that an electric current in a conductor produces a magnetic field around it.
- vii. Distinguish between conductors and insulators.
- viii. Describe the use of electrical measuring devices like galvanometer, ammeter and voltmeter (construction and working principles not required).
- ix. Differentiate between analogue and digital electronics.
- x. Explain that an element may change into another element when radioactivity occurs.
- xi. Compare the advantages of high technology communication devices with the traditional system through internet search.
- xii. Represent changes in the composition of the nucleus by symbolic equations when alpha or beta particles are emitted.
- xiii. Describe the effect of magnetic field on an electron beam.

- xiv. Explain by describing an experiment that an electric current in a conductor produces a magnetic field around it.
- xv. Describe the use of electrostatic charging.

SECTION-C

- Q.3**
 - a. Describe the construction and working principle of electroscope.
 - b. Solve problems of image location by spherical mirrors by using mirror formula
- Q.4**
 - a. Construct simple series (single path) and parallel circuits (multiple paths).
 - b. Identify and draw the symbols for the logic gates (NOT, OR, AND, NOR and NAND).
- Q.5**
 - a. Identify that a transformer works on the principle of mutual induction between two coils.
 - b. Explain the meaning of half life of a radioactive material.

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