

- (xii) Which of the following statements is **TRUE**?
- A. Gamma radiations have longer wave-length than the wave length of X-rays
 - B. X-rays have shorter wave-length and greater energy than Gamma radiation
 - C. X-rays are non-penetrating than Gamma radiation
 - D. Gamma radiations have shorter wave-length and energy than X-rays radiation
- (xiii) Which of the following is equal to coulomb per volt?
- A. Ohm
 - B. Impedance
 - C. Henry
 - D. Farad
- (xiv) Which is the unit of electric intensity?
- A. Coulomb / Newton
 - B. Meter / Volt
 - C. Newton / Metre
 - D. Volt / Metre
- (xv) Which of the following statements is **CORRECT**?
- A. Straight X-rays involve the use of a contrast medium
 - B. Special X-rays do not involve the use of a contrast medium
 - C. Special X-rays are useful for examining the bonny structure
 - D. Straight X-rays do not involve the use of a contrast medium
- (xvi) What gives the orbit a positive charge?
- A. By loosing neutron
 - B. By gaining electron
 - C. By loosing electron
 - D. By gaining proton
- (xvii) Which of the following particles is responsible for giving positive charge to the nucleus of an atom?
- A. Electron
 - B. Neutron
 - C. Proton
 - D. None of these
- (xviii) In which of the following circuits does the current remain the same in all the resistances?
- A. Parallel circuit
 - B. Series circuit
 - C. Short circuit
 - D. Open circuit
- (xix) Which of the following statements is **TRUE**?
- A. The product of power and time is intensity.
 - B. The ratio of power and work done is the reciprocal of time.
 - C. The ratio of time and work done is power.
 - D. The ratio of power and time is work done.
- (xx) Which of the following corresponds to the rate of doing work?
- A. Joule / sec
 - B. Joule / watt
 - C. Watt / second
 - D. None of these

For Examiner's use only:

Total Marks:

20

Marks Obtained:

— 1HA 1450 —



RADIOGRAPHIC TECHNIQUES HSSC-I

100

Time allowed: 2:35 Hours

Total Marks Sections B and C: 80

NOTE: Answer any ten parts from Section 'B' and any three questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

SECTION – B (Marks 50)

Q. 2 Answer any TEN parts. The answer to each part should not exceed 2 to 4 lines. (10 x 5 = 50)

- (i) Briefly write the basic structure of an atom.
- (ii) State three properties of resistances connected in series.
- (iii) Define Electromotive force (emf).
- (iv) Define Faraday's Law of electromagnetic induction.
- (v) What is Mutual and Self induction?
- (vi) Define A.C (Alternating current) generator.
- (vii) Write the mathematical expression of specific resistance.
- (viii) Define Ohm's law with one limitation.
- (ix) Define **Potential difference**.
- (x) Write the mathematical expression of equivalent resistance R_e , when the resistances are connected in series?
- (xi) Write three properties of resistances connected in parallel.
- (xii) Define Electric power and write its mathematical expression.
- (xiii) Write three hazards of electricity.
- (xiv) Define e.m.f.
- (xv) Write two radiation hazards in hospital.

SECTION – C (Marks 30)

Note: Attempt any THREE questions. All questions carry equal marks. (3 x 10 = 30)

- Q. 3** How are X-rays produced? Also draw its diagram.
- Q. 4** Describe the different types of radiations, their nature and characteristics.
- Q. 5** How are radiations detected? Explain.
- Q. 6** Write all possible precautions to be taken, while taking X-ray of a patient.
- Q. 7** Derive the expression $\frac{1}{R_e} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$ when three resistances R_1, R_2 & R_3 are connected in parallel.