117

RADIOGRAPHIC TECHNIQUES HSSC–I

SECTION – A (Marks 20)

Time allowed: 25 Minutes

Version Number	3	5	0	1

Note: Section – A is compulsory. All parts of this section are to be answered on the separately provided OMR Answer Sheet which should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q. 1 Choose the correct answer A / B / C / D by filling the relevant bubble for each question on the OMR Answer Sheet according to the instructions given there. Each part carries one mark.

1) Which of the following metals is most commonly used in conductors?

A. Gold B. Iron

C. Copper D. Silver

2) Which of the following chemicals is used in X-Ray films?

A. Silver Celluloid B. Bromide

C. Silver Chloride D. Fluoride

3) Which of the following units is used in measuring current?

A. Watt B. Joule

C. Ohm D. Ampere

4) Which of the following units is commonly used for energy measurement?

A. Ampere B. Watt

C. Kilo Watt-hour D. Volt

5) Which of the following particle has no charge?

A. Electron B. Proton

C. Neutron D. None

6) Which of the following is true in Ohm's Law?

A. Voltage and Resistance are directly proportional

B. Voltage and current are directly proportional

C. Current and resistance are directly proportional

D. None of these

7) Which of the following is magnetic effect of current?

A. When current flows through a wire, magnetic field is setup around it

B. When a conductor cuts magnetic flux, an e.m.f induce in it

C. Glass rod is charged by rubbing with cat skin

D. None of these

8) Which of the following laws is working principle of electric motor?

A. Coulomb's law B. Electrodynamics law

C. Faraday's law D. Ohm's law

9) Which of the following is true for series circuits?

A. Total resistance is equal to arithmetic addition of all the resistances

B. Different current flows through each resistance

C. Voltage remain same among all the resistances

D. None of these

10) Which of the following machines is related to AC circuit only?

A. Generator B. Motor C. Transformer D. None of these

11) Which of the following is **NOT** in electromagnetic radiation spectrum?

A. Infrared rays
B. Visible light
C. Gamma rays
D. Sound waves

12) Which of the following radiation is dangerous for genes of human body?

A. Infrared rays
B. Microwaves
C. Light waves
D. Gamma rays

13) Which of the following units is used to measure radiation effects on human body?

A. Roentgen
B. Rad
C. Ram
D. Curie

14) Which of the following is true for X-Rays tube?

A. It is always a gas filled glass tube
B. It is vacuum tube
C. It cannot withstand against high temperatures
D. None of these

15) Which of the following is true for Capacitor?

A. It is a device to store charge
B. It has two moving plates
C. It does not store charge
D. It is used to control current

16) Which of the following is used to produce electric energy?

A. X-Ray machine
B. Electric motor
C. Electric generator
D. Transformer

17) Which of the following is working principle of Transformer?

A. Electromagnetic radiation
B. Electromagnetic induction
C. Mutual Induction
D. None of these

18) Which of the following metals is used for radiation protection?

A. Copper
B. Aluminium
C. Lead
D. Glass

19) Increase in which of the following causes increase in intensity of magnetic lines of force?

A. Current
B. Voltage
C. Resistance
D. Field strength

20) Which of the following increases penetrating power of X-Rays?

A. Voltage
B. Current
C. Heat
D. None of these

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118

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) Define current, potential difference and resistance. Also mention their units of measurement.

(ii) Define matter, energy and power with their units.

(iii) What is inductance and Impedance?

(iv) What is resonance?

(v) Write law of electromagnetic induction. Illustrate your answer with diagram.

(vi) Write down properties of Parallel circuit.

(vii) Define A.C. frequency and Sine wave.

(viii) Write working principle of diode tube.

(ix) Enlist methods of film processing and explain one of them.

(x) Enlist the units of radiation and tell which quantity they measure.

(xi) What are the effects of current and voltage on emission of X-Rays from X-Rays tube?

(xii) What is Transformer? Enlist its parts.

(xiii) Enlist parts of electric generator and write their function.

(xiv) An A.C. circuit has 10 henry inductance and 20 ohm resistance connected in series. Circuit is supplied with 200 volts. Find its impedance and current.

(xv) What is halfwave and full wave rectification?

SECTION – C (Marks 30)

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

Q. 3 Write a detailed note on Atomic Structure.

Q. 4 Write working of electric motor. Illustrate your answer with diagrams.

Q. 5 What is a Film? Enlist types of films used in Radiography. Show their purpose of use along with sizes.

Q. 6 Write a comprehensive note on working of X-Rays tube.

Q. 7 What is composition and constituents of X-Rays film.