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Sig. of Candidate.

Answer Sheet No.

Sig. of Invigilator.

RADIOGRAPHIC TECHNIQUES HSSC-I

SECTION – A (Marks 20)

Time allowed: 25 Minutes

NOTE:- Section-A is compulsory and comprises pages 1-2. All parts of this section are to be answered on the question paper itself. It 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 Circle the correct option i.e. A / B / C / D. Each part carries one mark.

- (i) What is the smallest particle of matter which can exist in the universe freely?
A. Atom B. Molecule C. Element D. Matter
- (ii) Which of the following particles has no charge?
A. Proton B. Neutron C. Electron D. None of these
- (iii) Which law(s) explain(s) the relation between Force and Charges?
A. Faraday's Law B. Coulomb's Law C. Ohm's Law D. Laws of resistance
- (iv) To which of the following quantities is the Resistance directly proportional?
A. Length B. Area
C. Specific resistance D. Density
- (v) In which of the following circuits, resistance increases with the increase in number of resistances in the circuit?
A. Series circuit B. Parallel circuit C. Open circuit D. Short circuit.
- (vi) In what type of the circuit, is the total resistance always less than the lowest resistance in the circuit?
A. Series B. Parallel C. Open Circuit D. Short Circuit
- (vii) What is the rate of doing work called?
A. Power B. Energy C. Momentum D. Work
- (viii) What gives the orbits a negative charge?
A. Proton B. Neutron C. Electron D. None of these
- (ix) What is the statement called, "When current flows through a wire, a magnetic field is set up around it"?
A. Generator effect B. Motor effect
C. Magnetic effect of current D. Electric effect of magnet
- (x) What is the principle of transformer called?
A. Inductance B. Mutual Induction C. Reactance D. Inductive reactance
- (xi) What is the combined resistive effect in AC called?
A. Resistance B. Reactance C. Impedance D. Inductive reactance
- (xii) What is the single-phase voltage in Pakistan?
A. 440 Volt B. 11000 Volt C. 220 Volt D. 110 Volt
- (xiii) Which law(s) explain(s) the relation between Voltage, Current, and Resistance?
A. Faraday's Law B. Coulomb's Law C. Ohm's Law D. Laws of resistance

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- (xiv) Which of the following is the principle of Diode Tube?
- | | |
|------------------------|----------------------|
| A. Radioactivity | B. Radiation |
| C. Thermionic Emission | D. Electron Emission |
- (xv) What is the Rectification?
- | |
|--|
| A. Conversion of DC into AC |
| B. Conversion of AC into DC |
| C. Conversion of High Voltage into Low Voltage |
| D. Conversion of High Current into Low Current |
- (xvi) Which of the following gives positive charge to the Nucleus?
- | | | | |
|-------------|-----------|------------|-----------------------|
| A. Electron | B. Proton | C. Neutron | D. Proton and Neutron |
|-------------|-----------|------------|-----------------------|
- (xvii) Which of the following is unit of EMF?
- | | | | |
|-----------|---------|---------|--------|
| A. Ampere | B. Volt | C. Watt | D. Ohm |
|-----------|---------|---------|--------|
- (xviii) Which causes the increase in Voltage in Faraday's Law?
- | | |
|---------------------------------------|-----------------------------|
| A. Speed of the movement of conductor | B. Number of lines of force |
| C. Number of conductors | D. All of these |
- (xix) Which of the following is part of electromagnetic radiation spectrum?
- | | | | |
|----------|-----------|----------|-------------------|
| A. Sound | B. Energy | C. Power | D. Infrared waves |
|----------|-----------|----------|-------------------|
- (xx) In which of the following law, resistance is directly proportional to the length of conductor?
- | | | | |
|------------------|--------------|----------------|-------------------|
| A. Faraday's Law | B. Ohm's Law | C. Circuit Law | D. Resistance Law |
|------------------|--------------|----------------|-------------------|

For Examiner's use only:

Total Marks:

20

Marks Obtained:

— 1HA-1050 —

RADIOGRAPHIC TECHNIQUES HSSC-I

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

- (i) Write down the basic particles of atom.
- (ii) State the Laws of Resistance.
- (iii) Explain the relation between Voltage and Current.
- (iv) Differentiate between Energy and Power.
- (v) Write Faraday's law of electromagnet induction.
- (vi) Explain the working principle of transformer.
- (vii) What is Mutual Induction?
- (viii) Explain the working principle of electric motors.
- (ix) What is Thermionic emission?
- (x) Write down the function of Rectifier.
- (xi) Write a short note on electromagnetic radiation spectrum.
- (xii) List the units of Radiation.
- (xiii) Differentiate between Ionizing and Non-ionizing radiation.
- (xiv) Write down the cardinal principle of radiation protection.
- (xv) Differentiate between Negative and Positive contrast media.

SECTION – C (Marks 30)

Note: Attempt any THREE questions. All questions carry equal marks.

(3 x 10 = 30)

- Q. 3 Explain the properties of Series and Parallel Circuits.
- Q. 4 Explain Atomic Structure.
- Q. 5 Describe the working principle of Generator.
- Q. 6 What is Rectification? Explain the process of rectification.
- Q. 7 Write down the meaning of the following:

- | | | |
|--------------|--------------------------|------------|
| (a) Nasian | (b) Glabella | (c) Vertex |
| (d) Asterion | (e) Outer Canthus of eye | |