

DO NOT WRITE ANYTHING HERE

- (xi) Which of the following quantities create resonance when their effect is equal to each other?
- A. Resistance and Inductance B. Inductive reactance and Capacitive reactance
C. Inductance and Capacitance D. None of these
- (xii) Which of the following is the working principle of X-Ray tube?
- A. Ohm's Law B. Coulomb's Law
C. Thermionic Emission D. Space charge
- (xiii) How many electrons exist in the fourth orbit?
- A. 8 B. 18
C. 32 D. 52
- (xiv) Which of the following has ionizing ability?
- A. Radio Waves B. Ultrasound
C. Light Rays D. Ultraviolet rays
- (xv) Which of the following is the value of the voltage available at outlets?
- A. Maximum value B. Peak value
C. Average value D. Root means square value
- (xvi) Which of the following meters is connected in parallel to measure the quantity?
- A. Ampere meter B. Voltmeter
C. Wattmeter D. None of these
- (xvii) Which of the following voltages are phase to phase voltages in three phase supply in Pakistan?
- A. 220 V B. 440 V
C. 110 V D. 60 V
- (xviii) In which circuit, is the total resistance always lower than the lowest resistance in the circuit?
- A. Series circuit B. Parallel circuit
C. Series – Parallel circuit D. Short circuit
- (xix) Which of the following machines works on the principle of "Mutual Induction"?
- A. Generator B. Motor
C. Transformer D. Diode Tube
- (xx) Which of the following is defined as, "whenever current flows through the wire, a magnetic field is set up around it"?
- A. Magnetic effect of current B. Chemical effect of current
C. Electric effect of Magnet D. None of these

For Examiner's use only:

Total Marks:

20

Marks Obtained:

— 1HA 1550 —



RADIOGRAPHIC TECHNIQUES HSSC-I

102

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) What is Faraday's Law?
- (ii) What is Coulomb's Law?
- (iii) Differentiate between Potential and Potential difference.
- (iv) What is Sine Wave?
- (v) Define Wavelength, Frequency and Time Period.
- (vi) What is Mutual Induction?
- (vii) Write down the working principle of Motor.
- (viii) Derive a formula to calculate the resistance of conductor.
- (ix) What are Thermionic Emission and Space charge?
- (x) Derive a relation among Current, Voltage and Resistance.
- (xi) A heater is of 1000 watt. Find the current if it is connected across 220 volts supply.
- (xii) Three resistances of 7, 5 and 9 Ohms are connected in parallel. Find their total resistance.
- (xiii) A conductor has 100 metre length and a diameter of 10 centimetre. Find its resistance if specific resistance is 0.0072 Ohm-meter.
- (xiv) What are Capacitor and Capacitance?
- (xv) Write down the formulae of Inductive reactance, Capacitive Reactance and Impedance.

SECTION – C (Marks 30)

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

- Q. 3** Write a note on Diode Tube. Illustrate your answer with appropriate diagram.
- Q. 4** Describe Atomic structure with Ionization and Excitation.
- Q. 5** Write down the working principle and structure of a Transformer.
- Q. 6** Discuss Series and Parallel Circuits with their properties.
- Q. 7** Define A. C. How will you calculate R. M. S. value of A.C? Describe the difference of power in A.C. and D. C.