



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:



# 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.