THE BURNE AD THE	Roll No.		
	Sig. of Cand	idate	 

Answer Sheet No.	<u> [0]</u>
Sig. of Invigilator.	

RADIOGRAPHIC TECHNIQUES HSSC-I

# SECTION - A (Marks 20)

Time	allow	ed:	25	Mini	ites

(viii)

(ix)

(x)

A.

C.

A.

C.

Wavelength

Both A and B

11000 V

220 V

NOTE:	que	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)	(i) What is Ohm's law?				
		A.	A relation between Voltage and	d Resistance		
		B.	A relation between Voltage and	d Current		
		C.	A relation among Voltage, Curr	rent and Resista	ince	
		D.	None of these		_	
	(ii)	Which of the following is formula for power calculation in A.C?				
		A.	P = VI	B.	$P = I^2 R$	
		C.	$P = VICos\phi$	D.	$P = V^2 / R$	
	(iii)	Which of the following is symbol for unit of conductance?				
		A.	$\Omega$ (Omega)	B.	$\mu$ (Mu)	
		C.	$\phi$ (Phi)	D.	$\mho$ (Inverse Omega)	
	(iv)	Whic	h of the following is symbol of Res	sistivity?		
		A.	lpha (alpha)	B.	eta (Beta)	
		C.	ho (Rho)	D.	$\Omega$ (Omega)	
	(v)	In wh	nich of the following circuits, does	the total resistar	nce decre <b>ase w</b> ith addition of any resista	nce
	in the circuit?					
		A.	Parallel circuit	B.	Series circuit	
		C.	Series - Parallel circuit	<b>D</b> .	Short circuit	
	(vi)	Which of the following circuits is used as voltage divider?				
		A.	Parallel circuit	B.	Series circuit	
		C.	Series - Parallel circuit	D.	Short circuit	
	(vii)	Whic	h of the following is used in A.C. of	only?		
		A.	Generator	B.	Motor	
		C.	Voltmeter	D.	Transformer	

Which of the following is a combined effect of Resistance, Inductive Reactance and Capacitive Reactance? B. Capacitance A. Inductance

B.

D.

B.

D.

Time period

440 V

110 V

None of these

D. Impedance C. Resonance

Which of the following is standard voltage on single phase in Pakistan?

Which of the following decreases with increase in frequency?

## DO NOT WRITE ANYTHING HERE

(xi)	Which	h of the following quantities create res	onance whe	en 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)	Whic	h of the following is the working princi	ple of X-Ray			
	A.	Ohm's Law	B.	Coulomb's Law		
	C.	Thermionic Emission	D.	Space charge		
(xiii)	How	How many electrons exist in the fourth orbit?				
٠	A.	8	В.	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)	Whic	ch of the following is the value of the v	oltage avail			
	A.	Maximum value	B.	Peak value		
	C.	Average value	D.	Root means square value		
(xvi)	Whi	ch of the following meters is connecte	d in parallel	to measure the quantity?		
	A.	Ampere meter	B.	Voltmeter		
	C.	Wattmeter	D.	None of these		
(xvii)	Whi	ich of the following voltages are phase	e to phase v	oltages in three phase supply in Pakistan?		
•	A.	220 <b>Ÿ</b>	B.	440 V		
	C.	110 V	D.	60 V		
(xviii)	lower than the lowest resistance in the circuit?					
, ,	A.	Series circuit	B.	Parallel circuit		
	C.	Series – Parallel circuit	D.	Short circuit		
(xix)	Wh	ich of the following machines works o	n the princip	ple of "Matual Induction"?		
()	A.	Generator	B.	Motor		
	С	Transformer	D.	Diode Tube		
(xx)	Wh	nich of the following is defined as, "who	enever curre	ent flows through the wire, a magnetic field is se		
(,,,		ound it"?				
	Α.	Magnetic effect of current	B.	Chemical effect of current		
	C.	Electric effect of Magnet	D.	None of these		
	0.					
For	Exami	iner's use only:				
			To	tal Marks: 20		

Page 2 of 2 (Radio Tech)

Marks Obtained:



## RADIOGRAPHIC TECHNIQUES HSSC-I

Time allowed: 2:35 Hours

Total Marks Sections B and C: 80

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)

#### Answer any TEN parts. The answer to each part should not exceed 2 to 4 lines. Q. 2

 $(10 \times 5 = 50)$ 

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

### SECTION - C (Marks 30)

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

 $(3 \times 10 = 30)$ 

- Write a note on Diode Tube. Illustrate your answer with appropriate diagram. Q. 3
- Describe Atomic structure with Ionization and Excitation. Q. 4
- Write down the working principle and structure of a Transformer. Q. 5
- Q. 6 Discuss Series and Parallel Circuits with their properties.
- 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. Q. 7