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	Sig. of Candidate.					

Answer Sheet No		4
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RADIOGRAPHIC TECHNIQUES HSSC-I

SECTION - A (Marks 20)

C.

D.

TE:	ques	stion pa		the firs	arts of this section are to be answered on the t 25 minutes and handed over to the Centre not use lead pencil.		
1	Circle	the correct option i.e. A / B / C / D. Each part carries one mark.					
	(i)	Which	part corresponds to the conversion of A.	C into D).C?		
		A.	Ionization	B.	Amplication		
		C.	Rectification	D.	Transition		
	(ii)	Which of the following is called Anode in P.N.Junction?					
		A.	n region	B.	P region		
		C.	P-n region	D.	n-P region		
	(iii)	Which of the following is used in A.C circuit to limit the current with extremely small voltage of energy?					
		A.	Resistance	B.	Rheostate		
		C.	Choke	D.	Inductance		
	(iv)	Who d	liscovered X-ray?				
		A.	Lane	В.	Tungston		
		C.	Roentgen	D.	Geiger		
	(v)	Which of the following is used as contrast medium chemical to make the digestive tract visible?					
		A.	Calcium sulphate	B.	Barium sulphate		
		C.	Barium sulphide	D.	Barium nitrate		
	(vi)	Which of the following corresponds to the combined effect of resistance and resistances in A.C circuit?					
		A.	Choke	B.	Capacitor		
		C.	Modulation	D.	Impedance		
	(vii)	On which of the following principles does a transformer work?					
		A.	Self Induction	B.	Fleming's right hand rule		
		C.	Emotional e.m.f	D.	Mutual induction		
	(viii)	What	are the two main causes of power loss in	transfor	mer?		
		A.	Eddy current and voltage	В.	Voltage and current		
		C.	Eddy current and magnetic hysteresis	D.	Magnetic hysteresis and primary winding		
	(ix)	Which of the following is an example of non-ohmic devices?					
		A.	Resistance	B.	Bulb		
		C.	Fan	D.	Semi-conductor diode		
	(x)	Which of the following refers to resistor-capacitor combination when 1 ohm x 1 farad?					
		A.	1 volt	B.	1 capacitance		
		C.	1 second	D.	1 coulomb		
	(xi)	Which of the following statements is TRUE?					
		A.	eta -particle moves faster than $lpha$ -particl	е			
		В.	eta -particle moves with equal velocity o	f $lpha$ -par	rticle		

lpha -particle moves faster than eta -particle

eta -particle moves faster than γ -particle

DO NOT WRITE ANYTHING HERE

			Marks Obtained:				
			Tota	l Marks:	20		
or Ex	amine	r's use only:	····				
	Ç.	Watt / second	D.	None of these			
	A.	Joule / sec	В.	Joule / watt			
xx)	Which of the following corresponds to the rate of doing work?						
	D. The ratio of power and time is work done.						
	C.	·					
	B.	·					
	Α.	The product of power and time	-				
xix)	Which of the following statements is TRUE?						
	C.	Short circuit	D.	Open circuit			
	Α.	Parallel circuit	В.	Series circuit			
(iiivx	In which of the following circuits does the current remain the same in all the resistances?						
	C.	Proton	D.	None of these			
	A.	Electron	В.	Neutron			
xvii)	Whic	h of the following particles is resp	oonsible for givin	g positive charge to the	e nucleus of an atom		
	C.	By loosing electron	D.	By gaining proton			
	A.	By loosing neutron	В.	By gaining electron			
xvi)	What gives the orbit a positive charge?						
	D. Straight X-rays do not involve the use of a contrast medium						
	C.	Special X-rays are useful for examining the bonny structure					
	B.	Special X-rays do not involve	the use of a con	trast medium			
	A.	Straight X-rays involve the use	e of a contrast m	nedium			
XV)	Which of the following statements is CORRECT?						
	C.	Newton / Metre	D.	Volt / Metre			
	A.	Coulomb / Newton	В.	Meter / Volt			
xiv)	Which is the unit of electric intensity?						
	C.	Henry	D.	Farad			
	A.	Ohm	B.	Impedance			
xiii)	Which of the following is equal to coulomb per volt?						
	D. Gamma radiations have shorter wave-length and energy than X-rays radiation						
	C.	X-rays are non-penetrating than Gamma radiation					
	B.	X-rays have shorter wave-length and greater energy than Gamma radiation					
	A.	Gamma radiations have longer wave-length than the wave length of X-rays					
xii)	Which of the following statements is TRUE?						

--- 1HA 1450 -----



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

 $(10 \times 5 = 50)$

- (i) Briefly write the basic structure of an atom.
- (ii) State three properties of resistances connected in series.
- (iii) Define Emotional emf.
- (iv) Define Faraday's Law of electromagnetic induction.
- (v) What is Mutual and Self induction?
- (vi) Define A.C (Alternating current) generator.
- (vii) Write the mathematical experession of specific resistance.
- (viii) Define Ohm's law with one limitation.
- (ix) Define Potential difference.
- (x) Write the mathematical expression of equivalent resistance Re, when the resistances are connected is series?
- (xi) Write three properties of resistances connected in parallel.
- (xii) Define Electric power and write its mathematical expression.
- (xiii) Write three hazards of electricity.
- (xiv) Define e.m.f.
- (xv) Write two radiation hazards in hospital.

SECTION - C (Marks 30)

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

 $(3 \times 10 = 30)$

- Q. 3 How are X-rays produced? Also draw its diagram.
- Q. 4 Describe the different types of radiations, their nature and characteristics.
- Q. 5 How are radiations detected? Explain.
- Q. 6 Write all possible precautions to be taken, while taking X-ray of a patient.
- Q. 7 Derive the expression $\frac{1}{Re} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$ when three resistances $R_1, R_2 \& R_3$ are connected in parallel.