

Program: BE Biomedical Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code: **BMC604** and Course Name: **Medical Imaging-I**

Time: 1 hour

Max. Marks: 50

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3009_R16_BM_VI_BMC604_QP4

Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	In following interaction of radiation with matter, scattering of photon take place without change in energy
Option A:	Photoelectric effect
Option B:	Compton effect
Option C:	photodisintegration
Option D:	Coherent scattering
Q2.	Which of the following disease can be detected by X-Ray?
Option A:	Bladder infection
Option B:	Kidney stone
Option C:	Diarrhea
Option D:	Fever
Q3.	Approximate anode voltage across X-ray tube in diagnostic X-ray is
Option A:	100 MeV
Option B:	100 V
Option C:	100 mV
Option D:	100 KV
Q4.	Low energy photons removed from X-ray beam by
Option A:	Filter
Option B:	Grids
Option C:	Collimator
Option D:	X-ray film
Q5.	An X ray machine was invented by a professor named
Option A:	Sir Wilhelm Conrad Roentgen
Option B:	Dr Dennis Colonello
Option C:	Dr Larry wang
Option D:	Sir Norman Rolston
Q6.	If the wavelength of X-ray is 0.01 nm the energy of x-ray is

Option A:	1.24KV
Option B:	12.4KV
Option C:	124KV
Option D:	1240KV
Q7.	Following is not property of X-ray
Option A:	X-rays can travel through vacuum
Option B:	X-rays can attenuate as they passing through matter
Option C:	X-rays can reflect as they passing through matter
Option D:	X-rays can penetrate through matter
Q8.	Exposure time range in conventional X-ray is
Option A:	10-20 sec
Option B:	20-30 sec
Option C:	5-10 sec
Option D:	0-5 sec
Q9.	Role of electrostatic lens in Fluoroscopy is
Option A:	Convert x-rays into light
Option B:	Converts light into electrons
Option C:	Acceleration of electrons
Option D:	Focusing of electrons
Q10.	Out of the following which one is the part of Fluoroscopy
Option A:	Image Intensifying Tube
Option B:	LED camera
Option C:	US camera
Option D:	Earpiece
Q11.	What is the most popular and most common form of Digital Imaging?
Option A:	CR - computed radiology
Option B:	DR Flat Panel - direct radiology
Option C:	CCD Cabinet - charged coupled device
Option D:	CMOS Cabinet - complementary metal oxide semiconductor
Q12.	Energy range of X-ray use in Mammography
Option A:	100-120 keV
Option B:	80-100 KeV
Option C:	30-40 KeV
Option D:	120-140 KeV
Q13.	If the resolution of CT scanner is 5 line pairs /cm, what is the smallest size object that the machine can display?
Option A:	0.5 mm
Option B:	1 mm
Option C:	0.33 mm

Option D:	0.25 mm
Q14.	Total number of projections acquired in third generation of CT
Option A:	180
Option B:	6
Option C:	1000
Option D:	50
Q15.	Artifact cause in CT image due to polychromatic x-ray beam called as
Option A:	Beam Hardening Artifact
Option B:	Streak Artifact
Option C:	Motion Artifact
Option D:	Ring Artifact
Q16.	Scanning time required in fourth generation of CT
Option A:	5 minutes
Option B:	90 Sec
Option C:	5 sec
Option D:	1 Sec
Q17.	Reconstruction algorithm produce remove star pattern for sudden density changes
Option A:	Iterative
Option B:	Back Projection
Option C:	Filter Back Projection
Option D:	Fourier transform
Q18.	Small deviations from uniform CT numbers for homogeneous object is called as
Option A:	Image
Option B:	Contrast
Option C:	Resolution
Option D:	Noise
Q19.	In helical CT, pitch is defined as
Option A:	Table movement in 360 degrees / beam width
Option B:	Patient dose in 360 degrees / beam width
Option C:	Reconstructed slice thickness / beam width
Option D:	Gantry angle with respect to the scan axis
Q20.	MDCT is called as
Option A:	Seventh generation of CT
Option B:	Third generation of CT
Option C:	First generation of CT
Option D:	Fourth generation of CT
Q21.	In flat-panel detector of MDCT, light energy converted into electrical signal by

Option A:	Scintillating Crystal
Option B:	Photodiode
Option C:	Image Intensifier tube
Option D:	GM tube
Q22.	abnormal dilatation of a blood vessel is called as
Option A:	Blood clots
Option B:	Calcification
Option C:	Aneurysms
Option D:	arteriovenous malformation
Q23.	Out of following which statement is true for LINAC
Option A:	It is used to deliver external beam radiation treatments to cancer patients.
Option B:	It is used to see inside the body
Option C:	It used to check pregnancy
Option D:	It is not used for treatment
Q24.	Following energy of X-ray photon used in LINAC
Option A:	8 KeV
Option B:	8 MeV
Option C:	8 eV
Option D:	8 meV
Q25.	Acceleration of electrons take place in LINAC
Option A:	Magnetron
Option B:	Waveguide
Option C:	Treatment head
Option D:	Pulse modulator

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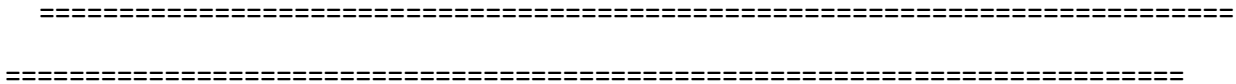
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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	D
Q2.	B
Q3.	D
Q4	A
Q5	A
Q6	C
Q7	C
Q8.	D
Q9.	D
Q10.	A
Q11.	A
Q12.	C
Q13.	B
Q14.	C
Q15.	A

Q16.	D
Q17.	C
Q18.	D
Q19.	A
Q20.	A
Q21.	B
Q22.	C
Q23.	A
Q24.	B
Q25.	B