

SNo	Question	Option1	Option2	Option3	Option4	Correct Option
1	Iron-55 (^{55}Fe) decays by electron capture. Which of the following GM counter can be used to detect ^{55}Fe ?	Type R, Sensitive energy range- 45KeV-1.5MeV	Type G, Sensitive energy range- 55Kev-5MeV	Type D, Sensitive energy range- 30KeV-15MeV	Type X, Sensitive energy range- 5KeV-10KeV	4
2	Iron-55 decays into which elemental substance and by emitting which type of radiation?	Manganese-55, X-Ray	Manganese-55, β -Ray	Manganese-55, α -Ray	Boron-33, X-Ray	1
3	Select the correct descending order in terms of ability to penetrate human skin by Alpha, Beta and Gamma particles.	Alpha>Beta>Gamma	Beta>Alpha>Gamma	Gamma>Alpha>Beta	Gamma>Beta>Alpha	4
4	Phosphorous-32 decays by which type of emission?	Alpha emission	Beta emission	Delta emission	Gamma emission	2
5	$^{32}_{15}\text{P}$ decays into $^{32}_{16}\text{S}$ with an emission of e^- . Calculate the number of protons on $^{32}_{16}\text{S}$?	15	16	14	17	2
6	Which is the most suitable shielding material for working with Phosphorus-32 isotope?	Concrete	Acrylic	Lead	Iron	2
7	Uranium-238 decays by Alpha decay emitting an alpha particle to thorium. $^{238}_{92}\text{U} \rightarrow \text{Th} + \text{Alpha particle}$. Select the correct thorium isotope from the above decay.	$^{234}_{90}\text{Th}$	b. $^{230}_{90}\text{Th}$	c. $^{236}_{92}\text{Th}$	d. $^{236}_{90}\text{Th}$	1
8	Ethidium Bromide solid waste should be discarded into---	Clearly marked EtBr Solid waste bins placed near Imaging stations	In Bio-hazard waste bins placed in the laboratory kitchen	In waste bins placed on the service floors	Any bins at campus	1
9	MSDS stands for--	Microscopy and spectroscopy Devices stability	Material Safety and Duties Solution	Manufacturer Specification and details sheet	Material Safety data Sheet	4
10	Which of the following is NOT a sterilization method?	UV irradiation	Fumigation	Vaccination	Autoclave	3
11	You should pipette by mouth-	When you cant find a pipette bulb or pipette aid	Only when your PI or lab mates are not looking	Always, Its fast , efficient and safe	Never	4
12	Liquid Biological spill has occurred in your lab. The first action should be to.	Call lab support staff to clean it up	Takeoff your gloves and call emergency.	Cordon off the area to stop anyone from spreading the contamination	spray with tap water	3
13	The monitoring equipment used in radiation lab is:	GM counter	Scintillation counter	Semiconductor detector	RF meter	1
14	One Gray of radiation is equal to:	1 rad	10 rads	100 rads	10000 rads	3
15	Biological dosimetry reflects:	Biological effect correlated with radiation dose	Biological effect converted from Gray to rad	Radiation dose required for sensitizing biological system	None of the above	1

16	First nuclear incident was reported from:	Hiroshima and Nagasaki	Chernobyl disaster in Ukrainian SSR	Fukushima Daichiichi Nuclear disaster in Japan	Bhopal in India	1
17	Who should wear radiation badge?	Those who operate medical x-ray equipment	Those who operate MRI machine	Those who ship radioactive materials	None of the above	1
18	Following is the regulatory authority of radiation in India:	BARC	AERB	DRDO	TIFR	2
19	Radio waves will have	higher frequency compared to Gamma Rays	higher frequency compared to X-ray	higher frequency compared to UV rays	None of the above	4
20	Half-life of Iodine 131 is:	8 days	80 days	5730 days	5730 years	1
21	Marie Curie and her family bagged _____ Nobel Prizes	2	3	4	5	3
22	Initial signs of radiation sickness is:	Fever and Mild Headache	Fever and body pain	Nausea and Vomiting	None of the above	3
23	How many pollen mother cells should undergo meiotic division to produce 32 pollen grains?	64	32	16	8	4
24	Which among the following pair of primers can be used to PCR amplify the DNA fragment : 5'-ATGCGTGTGCTGATGCTAGCTG—(300)--GCTAGATCGATCGATCGTTTTAGCGCG-3' 3'-TACGCACAGCGACTACGATCGAC---(300)--CGATCTAGCTAGCTAGCAAATCGCGC-5'	5'-ATGCGTGTGCTGATGCTAGCTG-3' and 5'-CGATCTAGCTAGCTAGCAAATCGCGC-3'	5'-ATGCGTGTGCTGATGCTAGCTG-3' and 5'-GCTAGATCGATCGATCGTTTTAGCGCG-3'	5'-TACGCACAGCGACTACGATCGAC-3' and 5'-GCGCGATTTGCTAGCTAGCTAGATCG-3'	5'-ATGCGTGTGCTGCTGATGCTAGCTG-3' and 5'-GCGCGATTTGCTAGCTAGCTAGATCG-3'	4
25	What will happen to the rate of photosynthesis if sodium bicarbonate is added in the water having hydrilla plant in a beaker?	It will remain normal	It will be decreased	It will be stopped	It will be accelerated	4
26	If an endosperm cell of a flowering plant contains 24 chromosomes, the number of chromosomes in each cell of the root will be	8	4	16	24	3
27	The aminoacid without chiral carbon is _____	Glycine	alanine	proline	tyrosine	1
28	If the endosperm cells of an angiosperm seeds are pentaploid, then such a seed may have been formed by which of the following parents?	Triploid female and diploid male.	Diploid male and tetraploid female.	Both parents tetraploid.	Triploid male and diploid female.	2
29	In eukaryotes, access to certain promoter sites on DNA by RNA polymerase is restricted by histones. For which of the following processes does this have the most direct consequence?	recognition of termination sites	control of gene expression	translocation of the tRNA along the ribosome	formation of the mitotic spindle	2

30	Biologist Lynn Margulis is a proponent of the theory of endosymbiosis, which suggests that the mitochondria of modern eukaryotic cells evolved from bacteria living symbiotically within early eukaryotic cells, Which of the following is supporting evidence for this theory?	Mitochondria require the internal environment of the eukaryotic cell to replicate.	Mitochondrial rRNA is more similar to bacterial rRNA than to eukaryotic rRNA transcribed from nuclear DNA.	Mitochondria are morphologically indistinguishable from free-living bacteria.	Mitochondria that are removed from eukaryotic cells and placed in a growth medium can generate fully functioning free-living cells.	2
31	For the process of photosynthesis all except one of the following items are essential. Point out the exception	CO ₂ , optimum temperature	Glucose and oxygen	Water and minerals	Light and chlorophyll	2
32	If the strand of DNA has 35 nucleotide how many phosphodiester bonds would exist	34	35	105	70	1
33	A gas cylinder can be identified by	Color	size	weight	its smell	1
34	You are transporting a culture or sample from the lab to another area on campus. You should-	Collect everything in your arms with gloves on and than go	Put everything you need in a tub (Including gloves) and then go	Grab the neck of the flask and walkaway	Do nothing, There is no hazard	2
35	There is a very successful experiment done in the laboratory and you want to celebrate. Cake and ice cream are brought in, you should?	Light the candles in the lab and then celebrate	No biggie, don't do anything	Go to the canteen and celebrate	Cut the cake on the bench where the experiment was done.	3
36	Washing your hands is.....	Not to be done before you leave the laboratory	The single most important way to decrease contamination in the lab and outside of it.	For people with obsessive compulsive disorder	Not for you	2
37	This symbol means: 	Radioactive substance	Corrosive	explosive	Oxidizing	3
38	Biosafety level lab (BSL) suitable for high risk pathogens are:	BSL4 and 5	BSL3 and 4	BSL2 and 3	BSL1 and 2	2
39	What is the volume of a cylindrical canister with radius 7 cm and height 12 cm.	1943.5 cm ³	1847.5 cm ³	1543. 5 cm ³	1747.5 cm ³	2
40	What is the meaning of this symbol? 	Explosive	Fire Hazard	Oxidizing	Reducing	3
41	Following equation is related to corrosion rate	Nernst equation	Faraday's equation	Zambryski's equation	none of the above	2
42	The acronym HEPA (as in HEPA Filter) stands for:	High-Efficiency Particulate Air	High-Energy Particles in Air	High-Evaluation Protection	Hepatitis A	1

43	Naturally acquired active immunity would be most likely acquired through which of the following processes?	Vaccination	Drinking Colostrum	Natural Birth	Infection with disease-causing organism followed by recovery	4
44	Monoclonal antibodies recognize a single.	Epitope	Bacterium	Antigen	B Cell	1
45	The cell containing many nuclei are called.	Coenocyte	Hyphae	Mycelium	Sporophore	1
46	Ozone depletion can be prevented by ...	decrease the usage of CFC products	fossil fuels are used in factories	use of scrubbers	none of these	1
47	Which of the following is an example of green biotechnology?	Industrial antibiotics	BT corn and pesticides	Industrial catalysts	Industrial chemicals	2
48	A darkly stained body within a nucleus without any prominent membranous boundary is called _____. Select the correct option.	Mitochondria	Nucleolus	Vacuole	Ribosome	2
49	Process of engulfing solid particles in the form of vacuoles. Select the correct option.	phagocytosis	pinocytosis	endocytosis	exocytosis	1
50	Why should near misses be reported?	To educate employees	To test the first aider	To ensure complete recovery	To stop a more serious event occurring	4