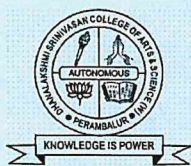


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**DHANALAKSHMI SRINIVASAN COLLEGE
OF ARTS & SCIENCE FOR WOMEN
(AUTONOMOUS)**



(For Candidates admitted from 2018-2019 onwards)

UG DEGREE EXAMINATIONS APRIL – 2021

B.SC - CHEMISTRY

NUCLEAR AND INDUSTRIAL CHEMISTRY

Time: 3 Hrs

Max.Marks: 75

PART – A

CHOOSE THE CORRECT ANSWER.

(10*1=10)

- Mass number is equal to the -----
 - Number of protons + Number of electrons
 - Number of proton + Number of neutrons
 - Number of neutrons + Number of electrons
 - Number of electrons
- The binding energy per nucleon
 - Increase steadily as we go to heavier elements
 - Decrease steadily as we go to heavier elements
 - Is approximately constant throughout the periodic table, except for very high nuclei
 - Has a maximum near iron in the periodic table
- A device for producing high velocity nuclei is -----
 - Cloud chamber
 - Linear accelerator
 - A mass spectrograph
 - Wilson cloud chamber
- When two atomic nuclei combine it is called as -----
 - Chain reaction
 - Nuclear fusion
 - Nuclear decay
 - Nuclear fission
- A radioactive isotope undergoes decay with respect to time following----- law
 - Logarithmic
 - Exponential
 - Inverse square
 - Linear
- The radiocarbon dating methods is a reliable method for dating remains upto
 - 200 000 years
 - 500 000 years
 - 150 000 years old
 - 50 000 years old
- What is curing?
 - Dehydration
 - Hydration
 - Drying
 - Dipping

8. Chemical energy is converted to ----- energy
 a) Solar b) Electrical c) Potential d) Mechanical
9. To obtain cement dry powder, lime stones and shales or their slurry, is burnt in a rotary kiln at a temperature between -----
 a) 1100° and 1200°C b) 1200° and 1300°C
 c) 1300° and 1400°C d) 1400° and 1500°C
10. The blended meal is sieved and fed into a rotating dish called a -----
 a) Clinker b) Kiln c) Granular d) Raw meal

PART – B

ANSWER ALL THE QUESTIONS

(5*7=35)

11. a) Explain how N/P ratio affects the nuclear stability
 (OR)
 b) How is packing fraction related to mass defects
12. a) State and explain nuclear transformation in radioactivity
 (OR)
 b) Explain the difference between nuclear fission and nuclear fusion
13. a) State and explain displacement law in radioactivity
 (OR)
 b) Explain the carbon dating
14. a) What are the treatment of tannery effluents
 (OR)
 b) Write the preparation caustic soda and bleaching powder
15. a) Discuss the manufacture of cement
 (OR)
 b) Write detailed account on formulation of paints

PART – C

ANSWER ANY THREE QUESTIONS

(3*10=30)

16. Explain the liquid drop model and shell models
17. Explain the Wilson cloud chamber and Geiger muller counter
18. What do you mean by
 (i) Modes of decay-group displacement law and
 (ii) Half-life period of radioactive elements
19. Differentiate the solar cells and fuel cells
20. Discuss the composition manufacturing and different types of glass