



DEPT. OF PHYSICS  
DEGLOOR COLLEGE, DEGLOOR  
MCQ PRACTICE SET  
B.Sc. T. Y. PAPER: XIV  
NUCLEAR PHYSICS

1. Process of splitting of heavy nucleus into lighter is called..  
A) Fusion  
B) Fission  
C) Spontaneous combustion  
D) Explosion
2. The number of neutrons present in  $U_{92}^{236}$  are  
A) 92  
B) 236  
C) 144  
D) 328
3. The ratio of neutron to proton in Uranium  $U_{92}^{236}$  nucleus is.  
A) 0.389  
B) 1.57  
C) 2.36  
D) 2.57
4. 1 amu is equal to...  
A) 913MeV  
B) 931 MeV  
C) 91.3 MeV  
D) 93.1 MeV
5. Sun releases enormous amounts of energies by the process known as  
A) Fusion  
B) Fission  
C) Spontaneous combustion  
D) Explosion



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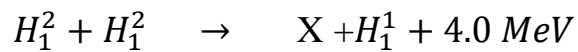
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6. Fission of the nucleus is achieved by bombarding it with
- A) Neutrons
  - B) Protons
  - C) X-Rays
  - D) Electrons
7. The difference between  $U_{92}^{235}$  and  $U_{92}^{238}$  is that
- A)  $U_{92}^{238}$  contains 3 more protons
  - B)  $U_{92}^{238}$  contains 3 more protons and 3 more electrons
  - C)  $U_{92}^{238}$  contains 3 more neutrons and 3 more electrons
  - D)  $U_{92}^{238}$  contains 3 more neutrons
8. If the speed of light were  $2/3$  of its present value, the energy released in a given atomic explosion will be
- A) Decreased by a factor  $\sqrt{\frac{9}{4}}$
  - B) Decreased by a factor  $2/3$
  - C) Decreased by a factor  $4/9$
  - D) Decreased by a factor  $5/9$
9. In a nuclear reaction, which of the following is conserved?
- A) Charge only
  - B) Energy only
  - C) Momentum only
  - D) All the above



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10. In process of nuclear fission
- A) B.E. per nucleon decreases
  - B) B.E. per nucleon increases
  - C) B.E. per nucleon remains unchanged
  - D) None of the above
11. In following nuclear reaction



Where X is

- A)  $H_2^3$
  - B)  $H_2^4$
  - C)  $H_1^3$
  - D)  $H_2^2$
12. The source of stellar energy is
- A) Fission
  - B) Fusion
  - C) Both fission and fusion
  - D) Neither fission nor fusion
13. In p-p chain reaction nuclear reaction...
- A) Two deuterium fuse first
  - B) Two protons fuse first
  - C) Deuterium and Proton fuse first
  - D) Triton and Proton fuse first



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14. Nuclear energy is used for...
- A) Generation of electricity
  - B) Production of war weapons
  - C) Medical purposes
  - D) All of above
15. The effective surface temperature of sun is ..
- A) 4000 K
  - B) 5000 K
  - C) 6000 K
  - D) 7000 K
16. Production of one helium nucleus from four protons is an example of ..
- A) Fission
  - B) Absorption
  - C) Emission
  - D) None of above
17. In fission process of Uranium nucleus, energy released per fission is about...
- A) 0.9MeV
  - B) 200MeV
  - C) 2000 MeV
  - D) None of above



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18. In fission process maximum energy released per fission is in the form of..
- A) Kinetic energy of fission neutrons
  - B) Kinetic energy of prompt  $\gamma$  -rays
  - C)  $\beta$  and  $\gamma$  decay energy
  - D) Kinetic energy of fission fragments
19. Total energy released per fission is
- A) Kinetic energy of fission neutrons
  - B) Kinetic energy of prompt  $\gamma$  -rays
  - C) Kinetic energy of fission fragments
  - D) Sum of kinetic energies of fission fragments, fission neutrons and prompt  $\gamma$  -rays
20. Mass is converted into energy according to relation.
- A)  $E = \frac{1}{2}mv^2$
  - B)  $E = mc^2$
  - C)  $E = mgh$
  - D)  $E = \frac{1}{2}mc^2$
21. The most suitable element for nuclear fission is the element into atomic number near
- A) 92
  - B) 11
  - C) 51
  - D) 21



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22. Nuclear energy is released in fission because binding energy per nucleon is.
- A) Greater for fission fragments than parent nucleus
  - B) Smaller for fission fragments than parent nucleus
  - C) Same for fission fragments and parent nucleus
  - D) None of above
23. Which of the following is/ are commonly used fissionable materials
- A)  $U^{235}$
  - B)  $U^{238}$
  - C)  $Th^{232}$
  - D) All of above
24. The device in which energy is released at a given rate is known as
- A) Nuclear reactor
  - B) Cloud chamber
  - C) Thermostat
  - D) None of above
25. Consider a nuclear reaction
- $$X + x \rightarrow Y + y \quad \text{Where } x \text{ is}$$
- A) Target nucleus
  - B) Bombarding particle
  - C) Product nucleus
  - D) Product particle



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26. Which of the following is/are good moderator?
- A) Heavy water ( $D_2O$ )
  - B) Ordinary water ( $H_2O$ )
  - C) Helium (He)
  - D) All of above
27. Ideally moderators have ..
- A) High atomic weight and High absorption cross section for neutron
  - B) High atomic weight and Low absorption cross section for neutron
  - C) Low atomic weight and High absorption cross section for neutron
  - D) Low atomic weight and Low absorption cross section for neutron
28. Energy generation in stars is mainly due to
- A) Fission of heavy nuclei
  - B) Fusion of heavy nuclei
  - C) Fusion of light nuclei
  - D) Chemical reaction
29. Fusion reaction can takes place at about
- A)  $3 \times 10^7$  K
  - B)  $3 \times 10^3$  K
  - C)  $3 \times 10^4$  K
  - D)  $3 \times 10^2$  K
30. Which of the following is/are main elements of nuclear reactors
- A) Fissionable material
  - B) Moderator
  - C) Neutron reflector
  - D) All of above