ODM EDUCATIONAL GROUP
Changing your Tomorrow

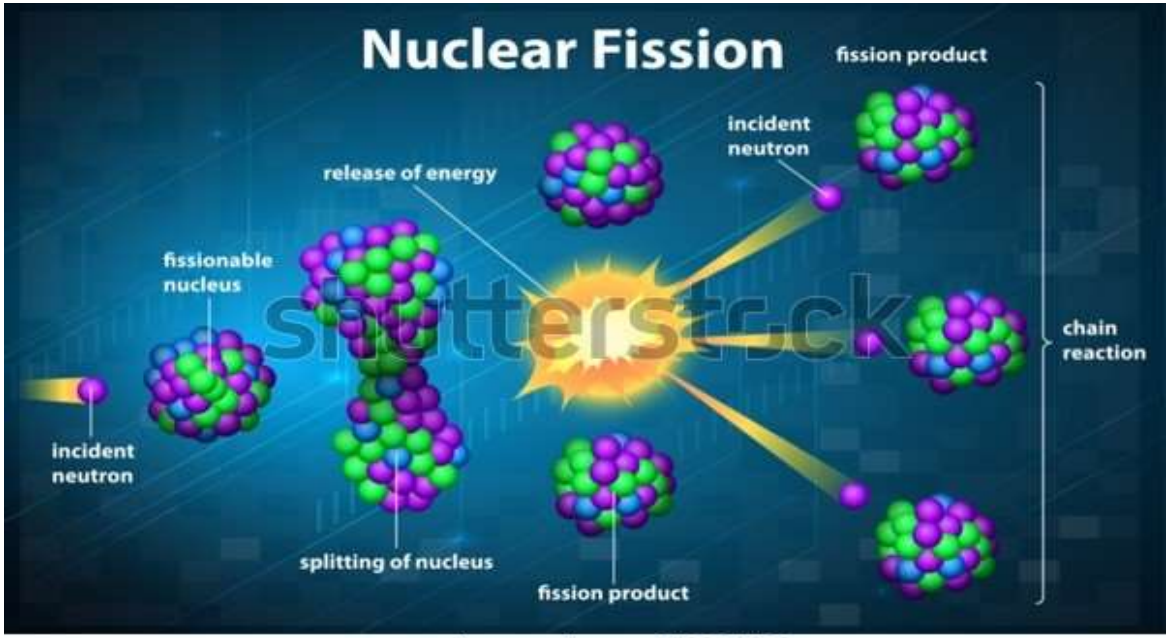
Nuclear Fission,Fusion

SUBJECT : PHYSICS
CHAPTER NUMBER: 13
CHAPTER NAME : NUCLEI

Website: www.odmegroup.org
Email: info@odmps.org
Toll Free: **1800 120 2316**
Sishu Vihar, Infocity Road, Patia, Bhubaneswar- 751024

NUCLEAR FISSION

- NUCLEAR FISSION
- CONDITIONS FOR FISSION REACTION
- HOW B.E. CURVE DECIDES NUCLEAR FISSION REACTION.



www.shutterstock.com · 163356650

ODM EDUCATIONAL GROUP
Changing your Tomorrow

NUCLEAR FISSION EXAMPLES

Example:-

(a) $_0n^1 + _{92}U^{235} \rightarrow _{92}U^{236} \rightarrow _{56}Ba^{144} + _{36}Kr^{89} + 3_0n^1 + Q$

(b) $_0n^1 + _{92}U^{235} \rightarrow _{92}U^{236} \rightarrow _{54}Xe^{140} + _{38}Sr^{94} + 2_0n^1$

Also, nuclear fission occurs in

(a) An atom bomb (uncontrolled fission)

(b) In Nuclear reactor (controlled fission reason)

TYPES OF CHAIN REACTION

- CONTROLLED CHAIN REACTION
- UN CONTROLLED CHAIN REACTION

NUCLEAR REACTOR

1.NUCLEAR REACTOR AND ITS DIFFERENT PARTS
2.MULTIPLICATION FACTOR AND CRITICAL SIZE
3.CRITICAL MASS

NUCLEAR FUSION

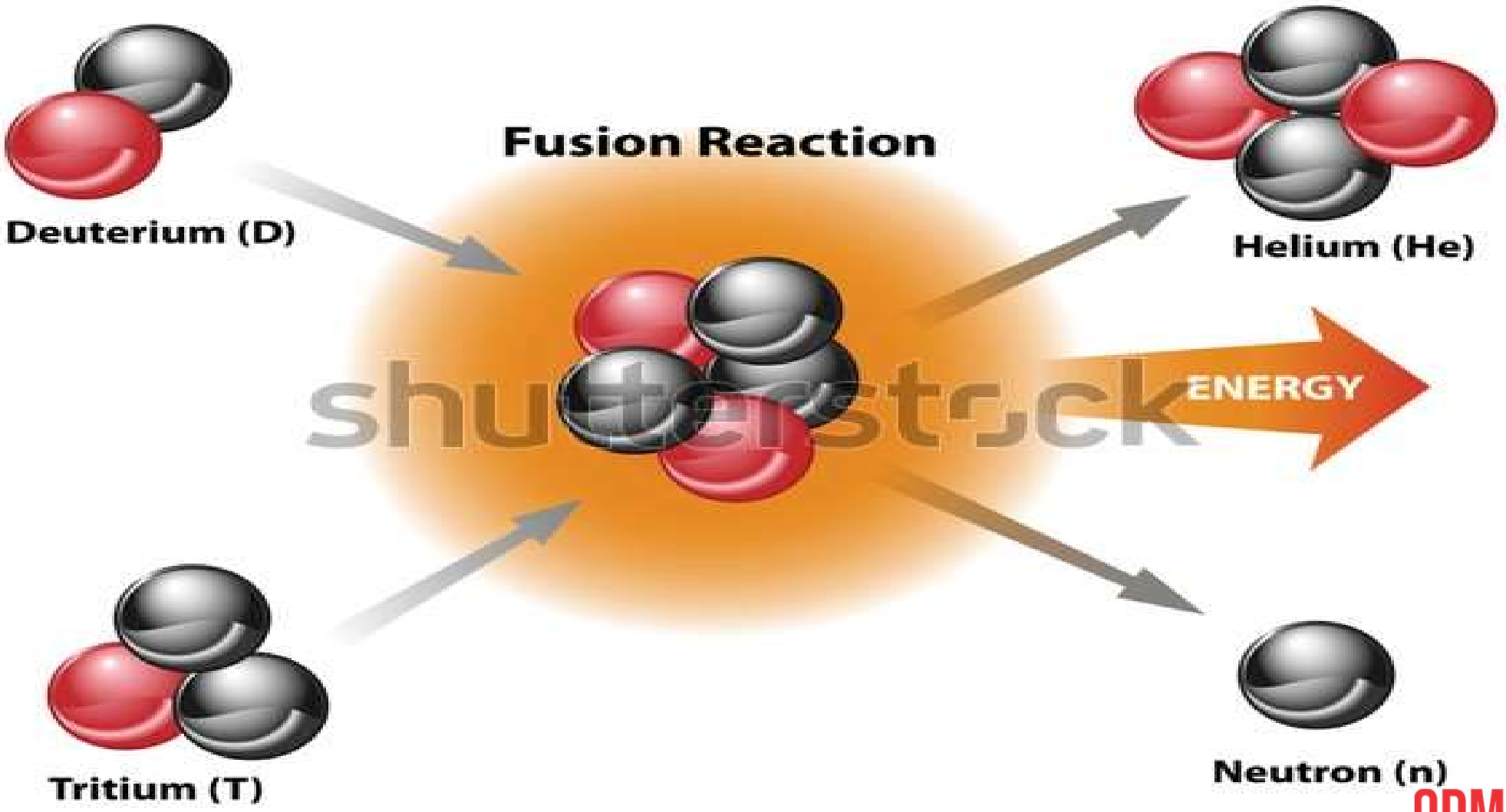
Example:-

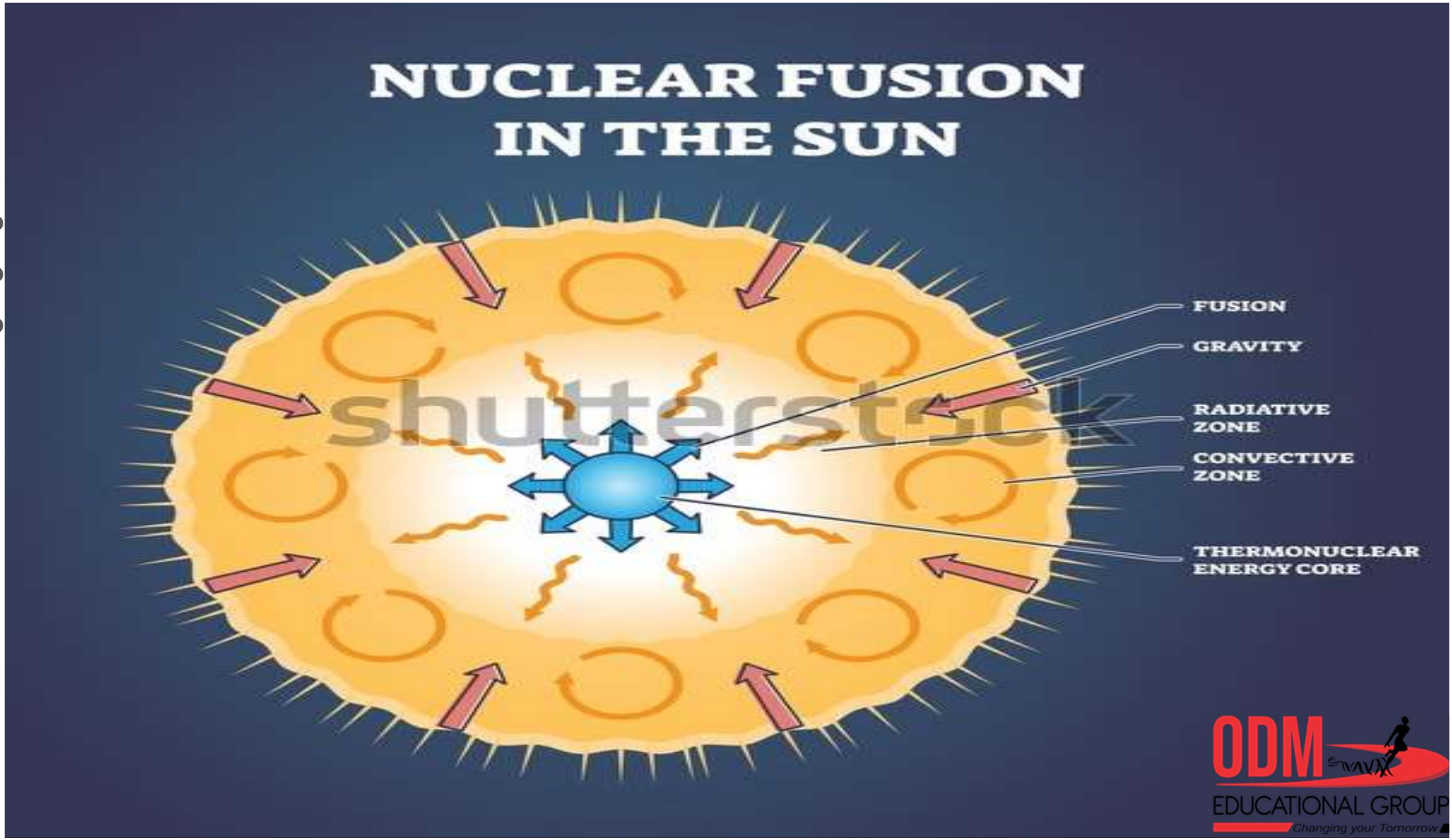
$$_1H^1 + _1H^1 \rightarrow _1H^2 + _{+1}e^0 + \gamma + 0.42\,mev \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

$$_1H^2 + _1H^2 \rightarrow _2He^3 + _0n^1 + 3.27\,mev \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

$$_1H^2 + _1H^2 \rightarrow _1H^3 + _1H^1 + 4.03\,mev \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

ODM EDUCATIONAL GROUP
Changing your Tomorrow




NUCLEAR FUSION
IN THE SUN
FUSION
GRAVITY
RADIATIVE ZONE
CONVECTIVE ZONE
THERMONUCLEAR ENERGY CORE
shutterstock
ODM
EDUCATIONAL GROUP
Changing your Tomorrow

NUCLEAR FUSION AND FISSION

- CONTROLLED THERMO NUCLEAR REACTION
- NUCLEAR WINTER
- NUCLEAR HOLOCAST
- DIFFERENCE BETWEEN FUSION AND FISSION

NUMERICALS

1.A 1000 MW fission reactor consumes half of its fuel in 5.00 y. How much $_{92}U^{235}$ did it contain initially? Assume that the reactor operates 80% of the time, that all the energy generated arises from the fission of 235 92 U and that this nuclide is consumed only by the fission process.

2.How long can an electric lamp of 100W be kept glowing by fusion of 2.0 kg of deuterium? Take the fusion reaction as $_{1}^{2}H + {}_{1}^{2}H = {}_{2}^{3}H + n + 3.2\ MeV$

THANKING YOU

ODM EDUCATIONAL GROUP

ODM EDUCATIONAL GROUP
Changing your Tomorrow