प्रश्न संख्या

मुख्य परीक्षा उत्तर पुस्तिका
(Mains Answer Sheet)

1 A	Influenza → It is a kind of infectious disease - spreading affecting people to people, in large number. Example - Swine flu, Bird flu
1 B	Double sa
1 C	Angiography → It is the study of flowering plants. Like sunflower. It involves study of fl and dispersal, plant reproduction et
1 d	~~Copyright → It is printing, publishing of idea, letter or writing~~
1 d	Copy right → It is the right entrusted to a person for printing, publishing or reproducing any idea of a particular writing or idea. (which is designed & produced by creator's mind). Protected under Copyright Act. No one can can use without the permission.

1 E

Gravity → It is the acceleration acting on a mass of body due to gravitational pull of Earth.

* Denoted by g * Value $g = 9.8 m/s^2$

1 F

Electric current → Flow produced by a charged particle due to flow of current.

* It is measured in coulomb

1 G

Probability → Possibility of occurence of single event from multiple possible outcomes called probability of an event e.g. tossing a coin Probability of head = (1/2)

1 H

Insect - 3 do

1 I

Gene Mapping → It is study of determining the genetic sequence of an organism from its DNA.
Use → targeted Drug delivery
↳ detect genetic Disease

1 J

Protein synthesis → is the process of formation of proteins inside the cell of organism. Through Enzymes like → lipase etc.

1 K

Bandwidth → It is the range of frequency ($f_1 - f_2$). Eg. Bandwidth of visible light is 380nm – 720nm.
Used in ... operations.

1 L

Magnetic Flux → It is the magnetic force Experienced a unit North pole placed at a particular point in magnetic field.
↳ Gauss Law determines magnetic flux.

1 M	CARTOSAT - It is an Earth observation satellite • placed in geostationary orbit • used for military purposes.
1 N	Radioactive Isotope - Isotopes are an Element lying in [illegible] of periodic table i.e. having same atomic number but different atomic mass e.g. Iodine-131, I-123
1 O	GM crop - A crop whose genetic structure is modified through either addition or removal of particular gene.

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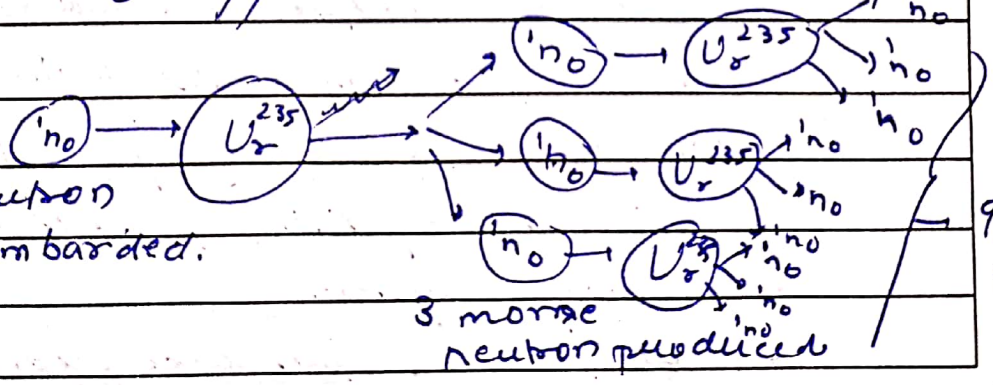
2 A

Nuclear fission → process in which on bombardment of neutron to a radioactive Element, it splits into two radioactive Element of lowermass & Atomic number.

Eq. $^1n_0 + U_{92}^{235} \rightarrow Ba_{56}^{141} + Kr_{36}^{92} + {}^1n_0 + \text{Energy}$

Energy Generation → on fission of Uranium isotope it produces 3 more neutron. which further strikes with 3 other Uranium atom to split them and produce 9 other neutrons + huge amount of Energy. This process goes on, and hence generation of significant amount of Energy take place in nuclear reactor.

Use :- Electricity generation (nuclear Energy)



2 C

Housing → It is governed and Regulated under Ministry of housing & Urban affairs.

2 innovations → Rooftop solar panel compulsory for commercial building

Energy Conservation Building Code Enforced.

(1) Rooftop solar panel → Govt provide subsidy for installation of Rooftop solar panel

↳ Also the households can sell Excess energy to the DISCOMs.

(2) Energy Conservation Building Code → should be adopted for administrative government & commercial buildings.

Like. Usage of Energy Efficient Appliances (Eg. LED), water harvesting system.

* Biomass produced from sewage from residential houses.

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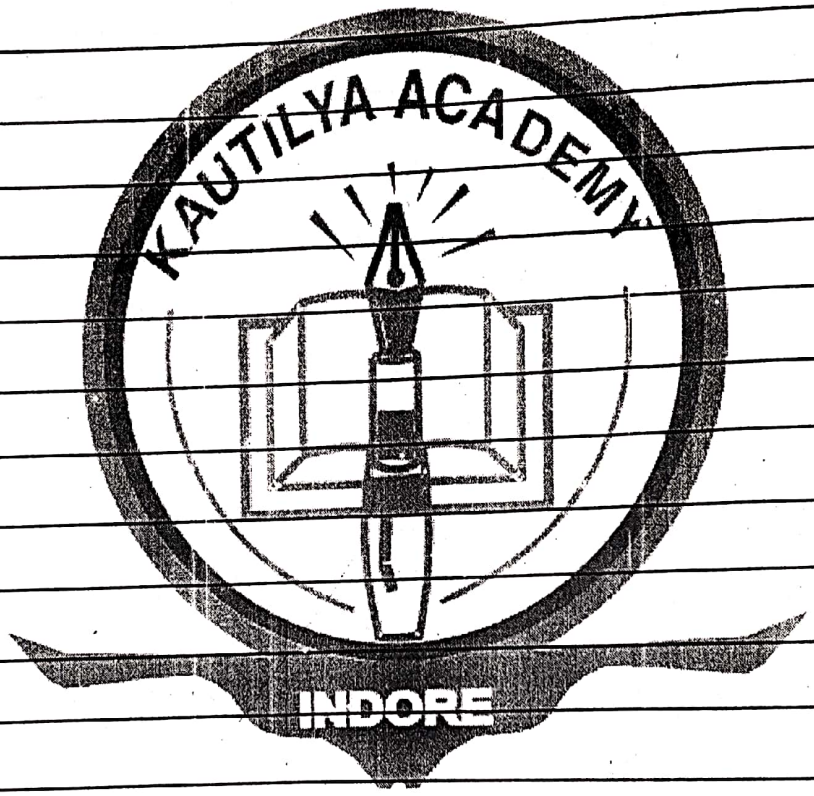
2 E

Sickle cell anemia →
↳ It is a genetic disorder
↳ In this



प्रश्न संख्या

मुख्य परीक्षा उत्तर पुस्तिका
(Mains Answer Sheet)

2 P

What is cloning →

↳ It is production of daughter cells exactly identical to ~~no~~ parent cell

↳ Genes are taken from single parent cell

2 Q1

Nanotechnology → Use of nano sized particles to obtain desired outcome.

Nanotechnology use in Medicine

↳ Target[illegible] drugs

↳ [illegible] without affecting healthy cell.

↳ Manufacturing of drugs by changing molecular [illegible] at nanolevel

↳ Coated nanoparticle used to clear [illegible] blood arteries

↳ Absorb toxic materials from ~~blood~~ Blood with help of coated nano particles.

प्रश्न संख्या

मुख्य परीक्षा उत्तर पुस्तिका
(Mains Answer Sheet)

भारत का नं. 1 संस्थान
कौटिल्य एकेडमी
सफलता का प्रवेश द्वार...

2 H

Petroleum → Petroleum is a fossil fuel obtained in sedimentary rocks

↳ formed due to marine transgression or submergence under sea.

↳ In India found at Bombay high, Bassein, Nahorkatiya (Assam)

Petroleum Refinery
Bongaigaon (UP)
Digboi (Assam)
Nahorkatiya (Assam)
Bombay (MH) High
Bassein (MH)

↳ used in transportation sector

2 J

Biopesticides:-

Pestides produced with the help of organic & natural elements like Biomass, without use of any chemical is it is known as Bio-pesticides.

Example → Neem → to kill pests & termites.

Advantage → Environment friendly
↳ Contribute to soil productivity
↳ Balance sustainable - pest population & crop health
↳ Pollinator friendly
↳ help to Eutrophication
↳ key in integrated pest management

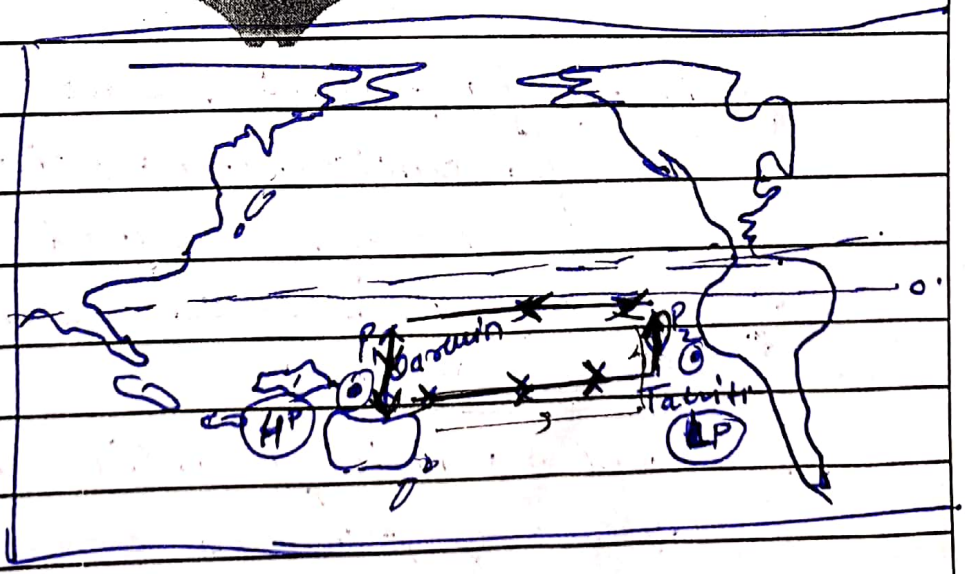
प्रश्न संख्या

मुख्य परीक्षा उत्तर पुस्तिका
(Mains Answer Sheet)

2 K

EL NINO → * Atmospheric oscillation of pressure difference between southern Indian ocean & southern pacific ocean leads to a condition of Elnino Effect.

* When low pressure forms over south pacific ocean near Peru due to replacement of cold peruvian current by warm water
* And high pressure over Australia Darwin.
* Winds flow from australia to south american coast → This is known as Elnino.
* Effect → Deficient rainfall in India.



2 4

Bio mass Energy →

Biomass → Organic waste generated from agriculture residue, Human & Animal Excreta, Household Vegetable waste etc. from Biomass.

Process

- These waste are stored under a tank under particular Pressure & temperature
- Bacteria & microbes lead to degradation of Biomass into simple forms.
- Degradation lead to generation of gas like methane & ammonia.
- Gas trapped & used to run turbine to [illegible] and produce Electricity.

Advantage → Power on free
→ Environment friendly
→ decrease the load of landfills
→ Help in solid waste management

Current Scenario → India current produce 9.9 GW of Biomass Energy in 2019.

प्रश्न संख्या

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भारत का नं. 1 संस्थान
कौटिल्य एकेडमी
सफलता का एकेडमी द्वारा...

3 A

Renewable Resources of Energy

↳ The sources of Energy whose rate of replenishment or amount of availability is far greater than the its usage for Electricity generation.
Eg. Solar Energy, wind Energy, Biomass Energy etc.

Non-Renewable / Exhaustible of Energy

↳ The Resources which takes millions of years for its replenishment which is less compared to its current rate of consumption. And May get exhausted on rapid consumption
Eg. Coal, Petroleum, Natural gas.

Solar Energy

India is 3rd largest producer as well as consumer of Elt. Energy after China & USA.

With Rapid pace of Urbanisation & industrialisation, Energy requirements

are growing manifolds.

→ Around 20% of Energy requirement of India is met by Renewable Energy (≈ 84 GW in 2019).

→ India's commitment in Paris deal to Increase capacity of 175 GW production of Energy from Renewable. In it this (100 GW) is to be contributed by Solar Energy.

→ India being tropical country - has natural advantage of solar Energy.

→ Distribution more or less uniform throughout the country.

→ India with help of France set up International solar Alliance.

→ Example for Rewa - Ultra Mega power plant of solar Energy → will provide

Energy to Delhi metro. → shows it contribution towards Urban developmental needs of India's future

But still some obstacles like Equipment [illegible], nationwide installation need addressed

3 B.

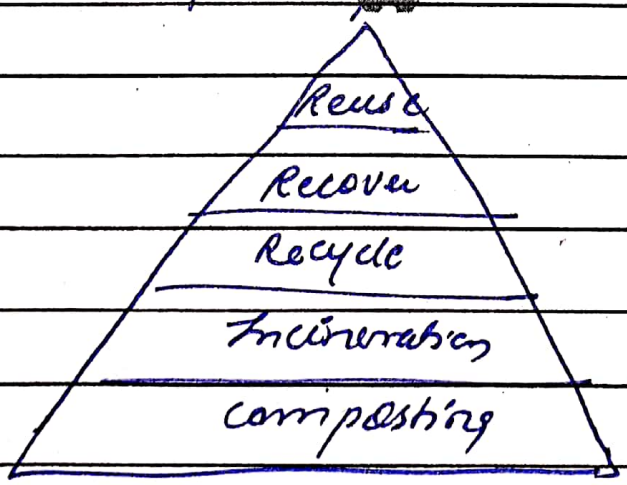
Solid Waste Management →

Waste generate due to domestic, Municipal & Industrial left over in solid form contribute to solid waste

The se[illegible] to[illegible]tion, transportation, disp[illegible] of solid waste comes under solid waste management.

Technologies used under solid waste management include

(1) Incineration
(2) Bioremediation.
(3) Ion exchange
(4) Land[illegible]
(5) Composting



(1) Incineration → Burning of solid waste after proper segregation is called Incineration. Heat & gas released are trapped to produce energy.

(2) Bio remediation → use of microbes to convert complex organic waste to simple form is known as Bio remediation.

(3) Ion Exchange → Especially used in industrial waste management with the help of suitable Ion Exchange

(4) Land fill → After proper arrangement to land control leachates → landfill is done & other waste is dumped.

(5) Composting → Putting of solid waste under Temperature & pressure

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(Mains Answer Sheet)

to convert it into organic manure is known as composting.

Solid waste management is key concern of today's developing world. It is Essen[illegible] ting ~~[illegible]~~'s SDG ta[illegible] of livelihood.