

MAINS TEST

• PAPER-3 Part (A)

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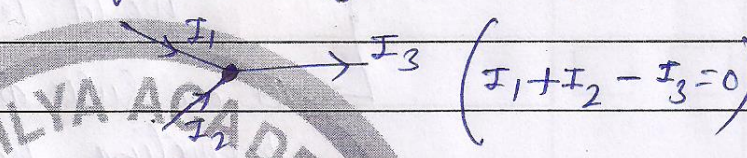
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प्रश्न संख्या

मुख्य परीक्षा उत्तर पुस्तिका
(Mains Answer Sheet)



कौटिल्य एकेडमी
सफलता का प्रवेश द्वार...

1	A	kirchoffs law — law in electricity based on flow of electric current through nodes of circuit.
		• It states total current entering a node is exactly equal to charge leaving node.
		
1	B	AYUSH — Ayurveda yoga Unani Siddha Homeopathy
		is based on non-allopatric principles.
		Government promote it through AYUSH ministry.
1	C	GSLV — Geosynchronous Launch Vehicle
		— Used by Indian Space Research Organisation (ISRO) to launch satellite in geo synchronous orbit
		Example GSLV MK-III, can has heaviest lift capacity of more than 4 ton.



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1	G	TIFR	Stands for Tata Institute of fundamental Research.
			Its Research & development centre under Government of India
			Fields :- Renewable energy, Atomic energy, Computer sciences.
			Location <u>Mumbai</u>
1	H	Periodicity	→ Repeatability of electronic configuration leading to placing of similar atoms in particular group.
		eg - group 1	→ Hydrogen, Lithium, Sodium in same group with periodicity of <u>1</u>
1	I	Amplitude	- its height achieved by wave from base line.
			Higher the amplitude greater strength of signal.
			We use amplitude magnification to let signal travel long distances.



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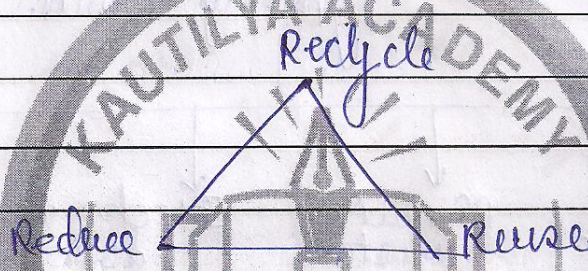
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Marasmus - It is a ^{deficiency} disease caused by lack of protein.</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> • Leads to weakening of muscles, bulging of stomach.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> • Generally seen in children.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> • Caused by high protein intake and balanced nutritional diet.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>[Osmosis] → movement of sol solution from low concentration region to high concentration region</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Example - In Raisin in water solution, water moves inside raisin.</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Application → use in water purification, by <u>Reverse osmosis</u>.</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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

<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	(4) <u>hazardous waste</u> → Eg waste from Nuclear power plants etc.
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<u>3R technique of management</u>
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<u>Solid waste</u> → Reduce by lowering consumption
<input type="checkbox"/>	<input type="checkbox"/>	→ Reuse → like plastics etc
<input type="checkbox"/>	<input type="checkbox"/>	→ Recycle ⇒ making Biogas
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<u>Electronic waste</u> → Reduce — use as per need and not luxury
<input type="checkbox"/>	<input type="checkbox"/>	→ Reuse — important components.
<input type="checkbox"/>	<input type="checkbox"/>	→ Recycle — by producers
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	



3	B	<p>Communicable diseases are those which can be transmitted from one person to another by mediums like water, air, faeces etc or can be zoonotic origin.</p>
		<p>Non-Communicable diseases are generally life style disease that can't be transmitted to another person.</p>
		<p># List of Communicable diseases</p>
		<p>→ HIV AIDS [Virus] → HIV AIDS,</p>
		<p>Corona (Covid-19), MERS, SARS, Polio, Influenza,</p>
		<p>→ <u>BACTERIA based</u> → eg Tuberculosis,</p>
		<p>→ others like conjunctivitis, leprosy.</p>
		<p># List of non communicable diseases</p>
		<p>Blood pressure (Hypertension) Diabetes Cancer Obesity → A</p>

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कौटिल्य एकेडमी
सफलता का प्रवेश द्वार...

<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	Prevention of Communicable diseases
<input type="checkbox"/>	<input type="checkbox"/>	* Sand WASH technique → focusing on Sanitation, washing hand etc.
<input type="checkbox"/>	<input type="checkbox"/>	* Avoiding crowded places
<input type="checkbox"/>	<input type="checkbox"/>	* Wearing mask
<input type="checkbox"/>	<input type="checkbox"/>	* Balanced diet
<input type="checkbox"/>	<input type="checkbox"/>	* Immunisation → Polio vaccine
<input type="checkbox"/>	<input type="checkbox"/>	Preventing Non Communicable disease
<input type="checkbox"/>	<input type="checkbox"/>	* Healthy life style → yoga, walk etc
<input type="checkbox"/>	<input type="checkbox"/>	* Avoid consumption of Alcohol, Tobacco
<input type="checkbox"/>	<input type="checkbox"/>	* Regular medical checkups.
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	Covid-19 has shown how a disease can have impact on socio- economic sphere. It is always better to have prevention than cure.
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	

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कौटिल्य एकेडमी
सफलता का प्रवेश द्वार...

3	D	Bio Technology is use of biological system like living organism to create different use ful products.
		there are various type of
		Biotechnology.
		<pre>graph TD; BT[Biotechnology] --> GB[Green Biotechnology]; BT --> RB[Red Biotechnology]; BT --> WB[White Biotechnology]; BT --> BB[Blue Biotechnology]; GB --> Ag[Agriculture]; RB --> Med[Medical]; WB --> Ind[Industrial]; BB --> Mar[marine];</pre>
		Various applications of Biotech. —
		(1) <u>In Agriculture</u> —
		• Today varieties of <u>seeds</u> are based on Biotech.
		eg — <u>Cm crop</u> → Bt-Cotton → led to multiple increase in productivity.
		— Hybrid seeds.

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कौटिल्य एकेडमी
सफलता का प्रवेश द्वार...

<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	(2) In <u>Health care</u>
<input type="checkbox"/>	<input type="checkbox"/>	→ cloning
<input type="checkbox"/>	<input type="checkbox"/>	→ 3 parent baby
<input type="checkbox"/>	<input type="checkbox"/>	→ In vitro fertilization
<input type="checkbox"/>	<input type="checkbox"/>	→ CRISPR-Cas Technology.
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	(3) <u>Industrial Application</u>
<input type="checkbox"/>	<input type="checkbox"/>	→ Food processing industry for long shelf life
<input type="checkbox"/>	<input type="checkbox"/>	→ In leather industry in tanning.
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	(4) <u>Marine</u>
<input type="checkbox"/>	<input type="checkbox"/>	→ Aquaculture, improving productivity
<input type="checkbox"/>	<input type="checkbox"/>	→ Oil spills → clean by <u>oil zapper</u> or microorganisms.
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	(5) <u>Energy</u>
<input type="checkbox"/>	<input type="checkbox"/>	↳ New bio mass system, <u>Fuel cells</u> based on microorganism properties.
<input type="checkbox"/>	<input type="checkbox"/>	

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कौटिल्य एकेडमी
सफलता का प्रवेश द्वार...

९	A	IRNSS is Indian Regional Navigation Satellite system. Its Indian version of navigation system.
		developed by ISRO
		features → uses group of 7 satellite
		4-geo syn. → 3 Sun Synchronous
		covers upto chinese areas.
		Advantages → India's own navigation system
		→ reduces dependence on GPS (USA) especially in case of war
		INDORE
		→ 2 types → civilian
		→ Defence
		→ covers range of 1500 km around area
		→ will promote further research.
		IRNSS is right step towards Atmanirbhar Bharat!

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कौटिल्य एकेडमी
सफलता का पथ है द्वारा...

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Human Robots are electronic equipment with specific programmes to perform specific task. Eg - Sophia - 1st human robot that got citizenship.
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	They help in enhancing quality of human life:-
<input type="checkbox"/>	<input type="checkbox"/>	* Reaching inaccessible areas → Eg in <u>mines</u>
<input type="checkbox"/>	<input type="checkbox"/>	* Protecting human life → Eg <u>fires</u>
<input type="checkbox"/>	<input type="checkbox"/>	* Serving <u>injured people</u>
<input type="checkbox"/>	<input type="checkbox"/>	→ eg - used in many hospitals to serve <u>COVID-19</u> patients.
<input type="checkbox"/>	<input type="checkbox"/>	* Doing daily chores in houses → cleaning, cooking etc.
<input type="checkbox"/>	<input type="checkbox"/>	* Linking them with AI technology further enhances experience
<input type="checkbox"/>	<input type="checkbox"/>	* can use them in <u>hotels & industries</u> .
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	there are fear of robot <u>overtaking</u> humans. But these technologies are only in development stages and <u>government</u> need to regulate them.

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Environment has been impacted by multitude of factors.
<input type="checkbox"/>	<input type="checkbox"/>			
<input type="checkbox"/>	<input type="checkbox"/>			Rapid and unplanned urbanisation ↳ eg - Mumbai floods.
<input type="checkbox"/>	<input type="checkbox"/>			Unsustainable Agriculture practices eg - Green Revolution
<input type="checkbox"/>	<input type="checkbox"/>			Causes of Degradation → High burden of population on limited resources.
<input type="checkbox"/>	<input type="checkbox"/>			→ Rapid Industrialisation ↳ production based on demand & not need & necessity
<input type="checkbox"/>	<input type="checkbox"/>			→ climate change caused by above factors eg - increase in forest fires (Amazon, Australia)
<input type="checkbox"/>	<input type="checkbox"/>			Environment we need to focus on Sustainable development Goals & implement Paris agreement.

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

2	4	Sustainable development focus on need of present generation while protecting resource for future generation.
		Sustainable development's purpose
		→ efficient use of resources
		→ limiting pollution
		→ considers needs of future generation
		→ Equitable distribution of resources
		Need for sustainable development
		→ impact of climate change is visible
		→ Threat of food security
		→ environment degradation.
		→ Caring for future generation.
		SDG 2015-30 aims at sustainable development in which India is on right path. But more efforts are required.

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

2	5	Difference Between metal & Nonmetal —	
		Metal	Non metal
<input type="checkbox"/>	<input type="checkbox"/>	* Ductile and Brittle	* non ductile ,
<input type="checkbox"/>	<input type="checkbox"/>	Eg Copper	mainly gaseous nature or solid.
<input type="checkbox"/>	<input type="checkbox"/>	* Solid, liquid.	* Generally gas, Solid
<input type="checkbox"/>	<input type="checkbox"/>	* Lustrous	Exception:- Br is liquid.
<input type="checkbox"/>	<input type="checkbox"/>	* Sonorous	* Non lustrous
<input type="checkbox"/>	<input type="checkbox"/>	Eg - Aluminium.	Exception - Iodine.
<input type="checkbox"/>	<input type="checkbox"/>	* Application —	* Application
<input type="checkbox"/>	<input type="checkbox"/>	wires, Aeroplane etc.	Carbon → Diamond
<input type="checkbox"/>	<input type="checkbox"/>		Oxygen → survival
<input type="checkbox"/>	<input type="checkbox"/>	* Conduct electricity,	* Non conductor of
<input type="checkbox"/>	<input type="checkbox"/>	Eg - Cu wire	electricity, heat
<input type="checkbox"/>	<input type="checkbox"/>		exception - Graphite
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		

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सफलता का प्रवेश द्वार...

<input type="checkbox"/>	<input type="checkbox"/>	Liver is the heaviest organ in human body It has multitude of Applications —
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	secretion of Bile that helps in digestion
<input type="checkbox"/>	<input type="checkbox"/>	Role of liver → converts excess of amino acid into ammonia by deamination
<input type="checkbox"/>	<input type="checkbox"/>	that convert in urea.
<input type="checkbox"/>	<input type="checkbox"/>	convert some protein in glucose in case of deficiency of Carbohydrates
<input type="checkbox"/>	<input type="checkbox"/>	Regulates quantity of glucose in blood.
<input type="checkbox"/>	<input type="checkbox"/>	Production of fibrinogen that help in blood clotting.
<input type="checkbox"/>	<input type="checkbox"/>	reconstruction of RBC in liver.
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	It's an important organ that also helps in post mortem analysis that give clue about any poisoning death.