



Connect to Conquer (C2C)

2019

IASbaba's Mains Answer Writing Programme

Test 2

Candidate Name:	Shivansh Surana	Date:	17/3/19
Mentor's Name:		Roll No.:	

Table of Marks			Instructions
Q. No.	Maximum Marks	Marks Obtained	<p>Please read each of the following instructions carefully before attempting the questions:</p> <ul style="list-style-type: none">• There are TWENTY questions.• All questions are compulsory.• Questions 1 to 10 carry 10 marks each.• Questions 11 to 20 carry 15 marks each.• The duration for the test is 180 minutes.• The answers must not exceed 150 words for 10 markers and 250 for 15 markers.• Content is more important than the number of words.
1	10	4.5	
2		4	
3		3	
4		1	
5		2	
6		2	
7		2.5	
8		1.5	
9		5.5	
10		5	
11	15	6	
12		6.5	
13		6	
14		6	
15		5	
16		7.5	
17		4	
18		1	
19		1	
20		1	
	Total Marks:	Total Marks Obtained:	
	250	72	

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OVERALL FEEDBACK/COMMENTS

To be filled by the examiner

- * Provide technology and economics related points.
- * Points like skill, income, employment are too generic for a science and tech answer.
- * Try to attempt all the questions.

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Q1. How far has make in India campaign altered the industrial landscape in India? Discuss

Candidates must not write on this margin

Make in India is the flagship programme of govt of India to boost indigenous manufacturing and increase the contribution of manufacturing sector to 25% by 2025

Success of MII

① Successfully boosted Defense Manufacture with innovations and investments from foreign
eg Scorpene class submarine built by India with technology transfer from France

② Make in India has significantly given push to MSME's in manufacturing with no of MSME crossing 1 crore since 2015.

target of

③ It has also created investments in manufacturing sectors like solar & renewable energy, automobiles & ICT manufacturing

For eg China opening mobile manufacturing in Bengaluru & Chennai

④ Rank of in EO OB increased improved from 100 to 77 in 2018

where MII failed

- ① Contribution of industries continued to lag at 15% of GDP since 2015.
- ② Majority of manufacturing occur by foreign technology transfer without much indigenous innovations
- ③ Success stories has been significant only in capital goods industry with consumer goods industry ~~being ignored~~.

This argument is subjective

Hence with the 4 pillars of MII would should also focus on innovations and with the sole focus on development of consumer industry.

Q2

Would you support privatization of railways.
Substantiate your argument with proper arguments.

Candidates
must not
write on
this margin

Indian railway network is 4th largest in terms of carrying capacity & carries nearly 1 crore passengers on a daily basis

Pros of privatization

- ① Increased professionalism of employees
- ② Enhances facilities such as security, in-route journey, passenger comfort etc.
- ③ Cleanliness of trains would ~~increase~~ improve.
- ④ Improved technology as in terms of fuel efficiency, ~~to being prompt~~ etc as private sector can afford introduced more investments.

Cons of privatization

- ① Revenue of govt would reduce
- ② Travelling by trains would become costly.
- ③ Indian railways ~~are~~ are a character of socialist govt

Also mention cross subsidizing

functional.

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and part of Indian heritage. Privatization would be a ~~poor~~ summed up on both these characters.

Provide better economics related points

Way ahead

- Indian railway can tie up with private sector in providing services like beddings, ticketing, security
- Enhance FDI in railways
- Boost ~~more~~ innovations - Train 18 is a good example

Can mention
Bibek Debroy
Rail Safety Committee
etc.
Kosh

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Candidates must not write on this margin

Q3. Illustrate the correlation b/w highway development & economic growth & suitable examples.

3
Road network and highways are considered to be the benchmark of development. According to Ministry of Highways India has a network of more than 10 lakh Km of highway.

M of road transport

Highway & economic development

- ① Creates opportunities around highways in terms of small business.
- ② Improved road means facilities like health, education would easily reach for flung areas.
- ③ Agriculture develop as marketing & transported goods can be easily marketed.

For generic arguments.

Eg of ~~Highways~~ Eg

- ① Golden Quadrilateral - which connect 4 metro political cities have ~~is~~ said to have a multiplier effect on GDP development as workers can easily migrate to other places.

link them to economic growth.

② NH 44 (earlier NH-1A) - ~~it has brought~~ remarkable development to earlier ~~underdeveloped~~ areas of J & K.

③ NH 76 - in Jajasthan has linked villages particularly in semi arid regions & fueled their growth.

~~for~~ However Highway development must also consider ecological aspect ~~in this sense~~ ~~as~~ ~~no~~ displacement of tribal people happens.

Economic growth must go hand with ecological development to ensure SDG - 2030 target

Use easily substantiable examples

like. - North south east west corridor.

- Industrial corridors (Eg DMIC)

- Bharath mala project etc.

Candidates must not write on this margin

Q5. What is BOT model } Bring out its advantages & drawbacks

2

BOT stands for Build operate & transfer is a private company designs & builds a project, operate it until the costs (& profits) are recovered and then transfer it to govt for further operation

Best examples

1) NHAI development by various & operation of Toll plaza to recover cost.

2) Mumbai Airport development by GVK.

Compare BOT with other models. For effective analysis.

Advantages

1) Private sector use best technology & innovation to deliv. best prod services.

2) Efficiency of operation as this model avoid delays. of project completion

Points are too generic.

Drawbacks

① Often the material used by private sector particularly in road construction is of poor quality to attract future contracts.

② Projects are not cost effective.

③ Corruption in giving contract to

way ahead

- Proper Mechanism to monitor function of construction of projects.

- Learning Technology from private sector so that future projects can be undertaken by govt itself

- Capacity building of public sector in terms of quality of material used, e.g. trained engineers, etc

BOT

EPC

Hybrid Annuity

- Tolling

govt funding

40% by govt

and 60% perfor

- Difficulty in land acquisition

- sceptical part ownership.

- performance based revenue sharing

Have you heard about HYSIS & why is it a big achievement? Discuss

Candidates must not write on this margin

2 Earth observation
HYSIS is a remote sensing satellite of ISRO of hyper spectral imaging capability etc. It was launched by PSCV-C43 launch vehicle.

Achievement of HISIS.

- ① would provide high throughput images especially of which would help in sectors such as agriculture, mineral detection etc.
- ② The satellite is capable of detecting land mines upto a few feet & hence would help in defence sector.
- ③ It would also be used for detection of minerals upto a few meters of geological depth.
- ④ Also help to detect in weather survey by imaging clouds, cyclones etc.

Lack of precision hence cannot be used for security purposes.

5) launch vehicle MYSIS is also an achievement because it was launched ~~along~~ with a dozen of other satellites

6) It would help in safe border Management by giving images of activity at border.

Hence MYSIS is a step ahead to take the India's space capability to the next stage in remote sensing

vision using → x rays, infrared, gamma rays etc.

→ Disaster management

→ Monsoon forecasting

→ helps in Fasal Bima Yojana etc.

Q. 5
Sector 7 Discuss

to ~~Themes~~ of 4th Industrial Revolution is going to revolutionize the landscape by devastating technologies like Machine Learning, AI & development of robots and health sector would be the 1st to feel its vibe.

Impact of Robotics in health sector

1) In surgery

As one of the robots in US successfully did a surgery on heart.

2) In drug design

by using ~~softwares~~ such as robots which are operated on softwares like PyMol can help to effectively design better drugs.

not linked to robotics

3) In-testing & diagnosis

Robots in China are successfully diagnosing patients with ~~cancer~~ cancer

Future Role of Robots in future

① They can help to advice patients and doctors ~~with the~~ about a new disease a patient can develop.

② Robots can replace humans in advising patients via ~~teleconferencing telemedicine~~

Provide better hints:

③ Can be used to develop treatment of genetic disorders such as sickle cell, hemophilia etc. rectify.

Future looks bright for health sector with the advent of robots. However it must be an ardent endeavour of ~~humanity~~ ^{humanity} to check that ~~human beings~~ ^{humanity} loss of individuality does not happen because of technology.

Content not satisfactory. Mention.

- Humanoids in curing loneliness among elders.
- High precision gene editing
- Successful organ transplantations
- Pacemakers, artificial hands & limbs etc.

Candidates must not write on this margin

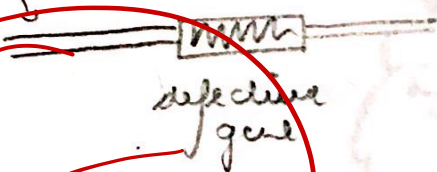
How you explain gene editing to a common man?
Give a simple & lucid answer

Explain gene first

Gene editing is the technology to correct a disease by replacing, editing or deleting a defective gene.

Gene editing explained

DNA

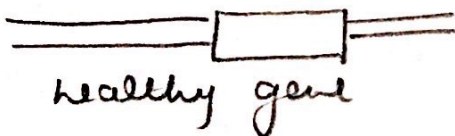


translation



defective protein

replace defective gene
via
Crispr-Cas 9 tech



translation



healthy protein

- Proteins in human body are produced by translation of gene.

But if a defective gene is present it would result in defective protein.

- This can lead to defects like sickle cell disease, fibrosis or soft bone disease.

But if the defective gene is replaced by a healthy gene by Crispr Cas 9 a healthy protein can be produced.

- In this way the disease can be recovered.

Today scientists have found successful solution some of disease like malaria, birth based hemophilia leukemia & even cancer via gene editing.

Just

explain

Gene editing

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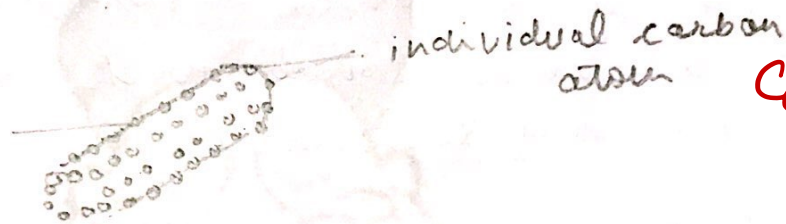
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What are carbon nanotubes? Discuss their applications.

Candidate must not write on this margin

Carbon nanotubes is an allotrope of carbon having tube like structure & properties such as high tensile strength, thermal resistance, shock absorption etc.

Tube like morphology



Structure of carbon nano-tube

great thermal conductor

Applications

- Good
- ① in defence
- designing high strength suits for soldiers
- coating weapons with carbon nano fiber for increased durability.
 - ② In space sector
- Recently Japan is mulling over space elevators with a ~~concept~~ carried by channel of carbon nanotubes.

③ In aviation

- fabrication ~~would reduce~~ of jets with carbon nanotube would result in light weight jets.

④ In medicine

- carbon nanotubes are extensively used for drug delivery & personalized medicine.

⑤ In automobile design

- In a recent experiment, it was found that coating ~~vehicle~~ exhaust with carbon nanotubes led to less emissions.

⑥ In designing fabrics

- especially for ~~fire~~ fire fighters for fire resistant clothes.

Hence Carbon nanotubes hold huge prospect for futuristic advancement & with time new dimensions would open for their applications.

Candidate must write this m

What is UMang? How can it be a gamechanger in Indian context?

Unified UMang stands for Unified Mobile App for New Age Governance is an effort by govt to advance the benefits of e-governance to public.

S UMANG-A game changer.

- ① In paying bills
- for eg water bills
- ① It would ~~reduce time by~~ enhance efficiency by bringing multiple services on a single platform such as paying bills of water & electricity.
- ② Facilitate other e-governance tools like aadhar as Aadhar status can be checked on UMANG.
- ③ Help in knowing the status of govt services like voting card, PAN card, Passport etc.
- ④ UMANG is an effort to connect more than 20 departments & ministries which would help

public by ^{avoid} ~~reducing~~ delays faced at Multiple levels.

⑤ UMANG comes with voice over functions hence is disabled friendly

⑥ ~~Help various workers by giving in~~ ~~transmitting~~ other services like DBT & financial inclusion as UMANG is

⑥ Avoid wage delays to workers of MGNREGA as they can check the status of their wages.

⑦ RTI can also be filed using UMANG app

UMANG is a step to reduce government's increase governance & would help go long way in creating a transparent & accountable government

Candidates must not write on this margin

Q11. What damage does digital illiteracy do to a society in 21st century? What measures have been taken to bridge the digital divide in India

Vision 2020 document of NITI aayog has digital India as one of the key target ambitions. However the prevalence of digital illiteracy is a barrier to achieve the targets in time. Only 10% population in India is digitally literate.

Provide more points
 - on cyber threats
 - digital divide etc.

Damages caused by digital illiteracy
 access to

- ① Poor delivery of services as most of the services are available online.
- ② Slower designing of new tools to deliver services via digital technology hence undermine innovation.
- ③ Leads to corruption & drop in transparency as it is difficult to digital technology help to curb corruption.

not linked to digital illiteracy.

worst cases

- ① Death of villagers in Sharkhard because they didn't know how to operate digital ration card.
- ② Farmers not able to track the DBT's received of subsidies.

under various schemes like PMFBY etc.

Unused KCCs, Jan Dhan accounts
way ahead etc.

① Govt initiatives like ~~digitally~~ for digital education.

② Campaigns conducted at village levels by bank personnel, teachers for digital literacy.

③ e-Mitra A CSC are set up to give services to digitally illiterate folk.

④ BharatNet to bridge the divide of internet access in 25000 Gram Panchayats.

⑤ ~~Government~~ Govt initiatives to educate youth about digital technology so they can teach their elderly.

⑥ Campaign by private companies to raise digital awareness.

New India would rise from the cradle of digital revolution & hence all efforts are necessary to bridge the digital divide.

Q12 Examine the challenges & potential of civil aviation sector in India. What measures have been taken to promote this sector

According to ICAO India is 1st largest market of civil aviation & expected to become 2nd largest in 2025 overtaking UK.

Challenges

- ① Hijacking
 - incidents like IC-814 in 1999.
- ② Smuggling
 - of gold, drugs, black money.
- ③ Import of threatened species like turtles, birds or invasive species like exotic plants, insect species

All are security related points. Provide diverse points.

Potential

- ① Enhance connectivity to tier 2 & tier 3 cities
- ② boost tourism & tourism related industries like hotels. in far flung cities

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Contribute to government initiatives like PRASAD scheme, Bharat Darshan that connect

Many cities

Boost employment & investment in newly connected cities

According to logistics index of World Bank for every 20% increase in air connectivity GDP increase by 1%.

Govt Initiatives

- ① UDAN scheme to make air travel cheaper.
- ② Digi Yatra in order to ^{to ease} ~~remove~~ physical obstacles such as check-in, ticket booking
- ③ Enhanced safety at airports by ~~ETA~~ CISFA sniffer dogs.
- ④ No New airports are disabled friendly & pregnant women friendly
- ⑤ Greenfield projects for development of new airports

Candidates must not write on this margin

100th airport at sibbin & jet running on
biofuel are positive signals for both
civil aviation & environment sustainability
development.

Challenges

- ① expensive
- ② ATF not under GST
- ③ insolvency of Jet Airways
↳ Airlines, air India → sceptical
passengers.
- ④ Lack of last mile and feeder
connectivity.

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Q. What do you understand by transfer of technology and why is it a vital component of any investment policy? Illustrate by taking examples.

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Transfer of technology means giving the technology to produce a good or service rather than the exchange of assets themselves.

Explain more on T O T S

Importance of ToT

- ① ToT brings in new innovation significant for development.
- ② Dispels any risks - for eg mobile phones manufactured abroad can be encrypted to steal data, but that manufactured indigenously with same tech has no such risk.
- ③ Boost indigenous manufacturing & hence generate domestic employment.
- ④ No physical exchange is involved hence logistic cost of transfer is saved.
- ⑤ Technology comes cheaper compared to assets themselves.

Examples

- ① Scorpene submarine built by TOT from France
- ② Micro irrigation practices being given by Israel
- ③ GM crop technology from America
- ④ Kudankulam Nuclear reactor designed from Russian Aid.
- ⑤ Bullet train in India - ~~from~~ TOT from Japan
- ⑥ Advanced MRI Machines technology imported from USA.

Technology Transfer

- Govt initiatives to boost TOT

- ① Improved EO DB environment
- ② Relaxed IPR regime
- ③ FDI in Multiple sectors
- ④ Make in India "Technology Transfer Pillar"

Can mention
- ICREATE
- TISC
- DTII
etc.

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FDI is important to propel growth however it must be coupled with indigenous innovation which can be aided by initiatives like Aatmanirbhar innovations program.



Q4.

How is IT transforming lives of a common citizen in India? Illustrate by taking atleast 3 examples.

The ^{4th} Industrial revolution would be led by digital technology which would help to substantially transform the lives of people.

It is transforming lives:

- ① By increasing efficiency as most of the tasks can be done from comfort of home.
- ② Enhanced transparency as government functions can be monitored by app like MyGov.
- ③ Transfer of Money has ~~become~~ become convenient by e-wallets, digital banking etc.
- ④ ICT is safe which promotes its usage.

→ subjective argument.

Examples where IT has transformed lives

- ① In Flight & Train bookings

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earlier one had to stand in long queues for ticket booking
Now can be done conveniently by IRCTC website

Candidates must not write on this margin

② In finance sector

Money ~~trans~~ sending money to other account,
paying bills for services etc does not require
going to the bank or bill payment booth.

UPI, BHIM app etc

③ education

initiatives like SWAYAM has helped to poor
children access higher education programs for
free.

④ Maintaining transparency

by knowing ~~file~~ & knowing the status of RTI
via websites

However problems like digital illiteracy & cyber
threats need to be addressed to which would
help to make ICT more safe & inclusive

Explain
more
on
these
examples.

Q1. Drones have become very popular all over world. If you are asked to illustrate at least 4 examples of drones what would those be. Discuss

Candidates must not write on this margin

Drones are electronic aerial unmanned flying objects having applications like surveying, photography, monitoring etc.

Role of drones

① In disaster Management

- Stranded people in disaster can be identified
- eg in floods

② Security & Border Management

- Recce operations can be done in sensitive areas like LOC
- Drones can be integrated to CIBMS

③ Traffic Management

- as traffic hotspots can be identified & help release ~~the~~ stuck traffic

④ Agriculture

- Identify the loss done by pests incurred due to pest attack, excessive rain

⑤ Mineral survey

- Spectral imaging can be used to identify underground minerals.

⑥ Identify for water table

- in drought prone areas

⑦ Meteorology

- ~~HA~~ events like cyclones can be detected accurately

⑧ Help fishermen

- ~~to~~ by detecting relative position of isoclines
Δ strong waves
- also identify fish catch.

⑨ Urban planning

- plan cities according to land used data obtained from drones.

Recently Ministry of civil aviation released guidelines for operation & registration of drones. This would result in efficient ~~strong~~ regulation & the sector & safety safeguard sensitive institutions use airports.

When you are asked for atleast 4 example examiner is expecting 2 examples with good explanation.

Provide 10 examples doesn't make a perfect answer.

Q16

What significance do ports hold for India's strategic & economic interests. Illustrate. Also mention measures to strengthen port infrastructure.

According to Ministry of Shipping about 70% trade by value & 90% trade by volume is carried by ports.

Significance of ports

① In trade

- as a significant part of trade is carried by ports.

② Development of Fisheries

- especially in deep waters which by harbouring boats which require deep sea fishing.

③ In cargo transportation

- on high seas & inland.

(Indian oceans sea routes)

④ Ports - Economic development of region eg Kandla, Bhavnagar cities are prosperous as they have ports.

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③ Employment generation
- skilled & unskilled workforce to be placed at docks

④ Secure international waters.

steps taken by

① Sagarmala project to modernise ports

② Privatization: to introduce new technology - recent Kanyabari port to be developed by private contribution

③ Automation of ports

- Mahindra automated Kandla, Mumbai & Bhavnagar ports

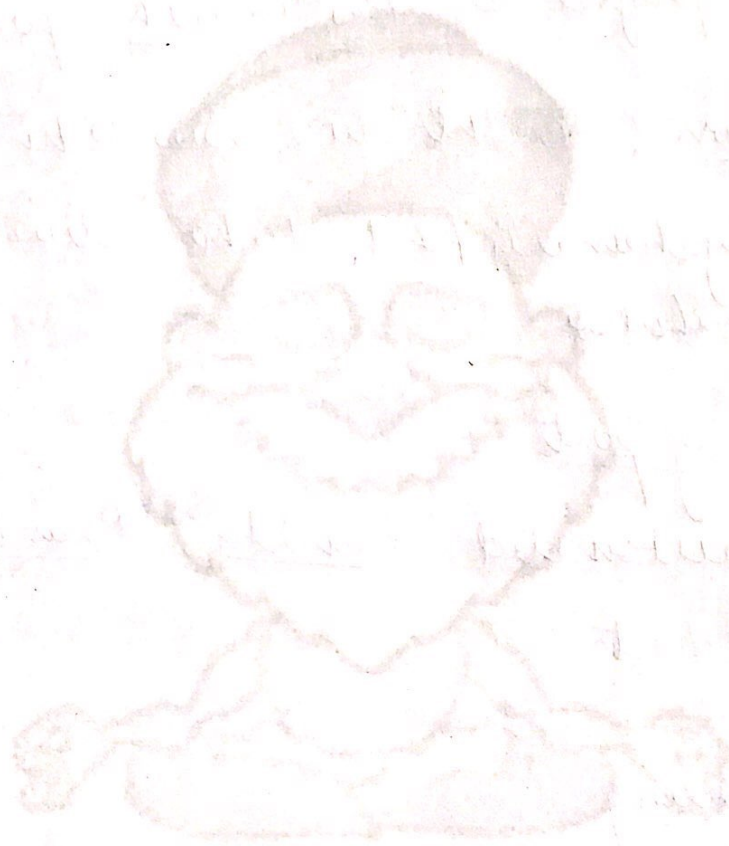
④ Capacity building

- eg addition of New berths at Nhava Sheva port.

⑤ 100% FDI in Port development

RFID, TAMP etc.

Ports are key to ~~success~~ of economic development in a littoral region & all efforts must be put to ~~enrich~~ their capability



How in the present use of AI

Candidates must not write on this margin

Artificial intelligence is a term to denote intelligence integrated into machines machines by computer algorithms so they can learn from their operation & processes.

Uses

- ① In refining online searches
- as AI can give suggestions
- ② Bring efficiency in health sector
- as ~~use of~~ AI to help in drug discovery
- ③ generate employment
- for AI programmers as more and more AI is used in day to day life
- ④ Finance sector
- to give suggestion on best household budget management, risk of investments & choice of investment instruments like stock, bonds or FD

Provide technology relate point.

⑤ e-convergence

- would also see a positive spin with user choices can be identified & made more sensible

Challenges

① AI weapons like Automated weapons systems can get into hands of terrorists

② ~~create~~ job loss of jobs as most of the work to be over taken by machines

Provide better point.

③ AI would also ~~Researches~~ say AI would make users more & more lazy as they have to do less work.

④ AI can influence choice ~~such as~~ voting patterns, promotion of particular good online etc.

① Ethics

② Real time situations

③ Huge data back up required.

⑤ AI is a major boon for humanity. However all efforts must be put to ensure that AI does not turn ~~to~~ to be a 'rogue invention'

Q16.

How was the year 2018 for Indian Science community
Enumerate atleast 5 major achievements.

discovery in
Science & Technology and the is the most important
dimension to determine the progress of
Nation. In India majority of science and
technology ~~measures~~ measures are taken by
Department of Science & Technology

Achievement

→ CFX2 silk

→ Oneer TM

→ World's first tele

Cardiac surgery.

① Space

- Launch of Mysor, Insat-3D & GSAT-19, etc
- announcement of reusable launch vehicles.

→ Jaganyaan

② Defence

- ~~Do~~ indigenous INS Arhan successfully tested
- Agni-5 missile (ICBM) developed.

→ Indigo

not in do?

③ Agriculture

- drought resistant varieties of wheat, cotton, & millet developed by ICAR & CAZRI
- GM crops like Bt brinjal, Bt Mustard were tested