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Saumya

Saumya Pandey



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#atle deapo bhava

ESSAY

Time allowed: Three Hours

Maximum Marks: 250

QUESTION PAPER SPECIFIC INSTRUCTIUONS

(Please read each of the following instructions carefully before attempting questions)

The ESSAY should be written in the booklet provided. Only, in case of any difficulty it could be written in plain paper.

Word limit, as specified, should be adhered to.

Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.

Upon completion, scan/take photo and send it as a SINGLE PDF file to upstree@upstree.com for review.

Personalized review will be provided only for registered user.



Write TWO essays, choosing from the following, in about 1000-1200 words each.

1. Technology makes democracy more democratic
- ✓ 2. There is no meaning of economic prosperity if it is not accompanied by social justice.
- ✓ 3. Embracing the Fourth Industrial Revolution.
- ✓ 4. Demography of India - Visible dividend or Invisible disaster.

(3) EMBRACING FOURTH INDUSTRIAL REVOLUTION

"Nothing in the world can stop ~~the~~ ^{an} idea whose time has come" — Victor Hugo.

Today we are standing at the cusp of a global intellectual and technological renaissance.

in the form of Fourth Industrial Revolution. The term 'Fourth Industrial Revolution (I.R.)' was coined in the World Economic Forum's ^{annual} summit at Davos (Switzerland) in January 2016 by the world leaders. It signals the amalgamation of

State of the art technologies in form of — Internet of Things (IoT), automation, Robotics, Biotechnology, nanotechnology etc leading to the the mixture of physical and cyber space. It also

Renaissance is essentially means rebirth or renew. To rebirth/renew it has to 'die' first. But in case of technology → Man has never lost his interest in it, so there is no question of rebirth/renew. In a better word - 'technological disreption' - disreption because it is going to change the way we do things.

Beautiful and well-thought out introduction

v. good and aptly captures the meaning



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signifies the next level of human-machine interface wherein not only technology would help in seamless connectivity - physical, economic, digital and intellectual and lead to a Knowledge-based integrated world.



If we look into the history of Industrial revolutions, we can trace it back to eighteenth century (1750s) whereby the England witnessed 1st Industrial revolution by invention of steam engine (by James Watt) and mass production in a capitalistic setup. It soon spread to Western Europe and USA (1800s) and later to Japan. It also led to the era of Colonialism and Imperialism in search of sources of raw material and market for factory made finished goods. Indian colonial The collapse of Indian textile industry and dethroning of India's position in world trade (from 24% to world's GDP to less than 2%) in a matter of few years)



was due to colonial -se de-industrialisation of India. Thus the effects of ^{1st} Industrial

Revolution had positive spill overs for ^{European} Colonial masters, but a death blow for the colonies in Asia, Africa and Latin America. The two

world wars were also an indirect result of rapid industrialisation of European nation states, when they started competing for colonies world over.

The 1st I.R. also had social, economic, political and ecological repercussions. It led to capitalistic ~~social~~ societies in west with wide inequality

between have and have ~~nots~~. It also gave birth to a counter current of Communism and socialism culminating in 1917 Russian Revolution

and rise of USSR. Environmental degradation, pollution and increase in Green House Gas concentration can also be traced back to this period. Laissez faire theory of Adam Smith also flourished post 1st I.R.





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ANSWER BOOKLET

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The 2nd Industrial Revolution is believed to be started ~~by~~ with invention of electricity and electromagnetic laws by Michael Faraday, which ushered in a transformational shift in working of things. It increased the pace and distance covered by transportation and boosted communication, commerce and trade. The most visible effect of 2nd I.R was seen in second world war (1939-45) by USA and USSR. The 2nd I.R also benefitted the western world and Japan with minimal contributions by former colonies or recently newly independent states like India.

The 3rd Industrial Revolution began by the invention of World wide web in CERN (Switzerland) and Internet. Initially limited to defense purposes (US Army), it was later opened for civilians and led to unprecedented changes in form of instant messaging, repository of knowledge, search-

space technology

good usage
of word

engines, video conferencing, digitalisations etc. Led by USA, it first spread rapidly in western Europe. India too was a pioneer in adopting Information Technology, which was a focus area in its 8th Five Year Plan.

India had its — After witnessing three major transformational 'Revolutions', today we are again witnessing the rise of the next and perhaps the most disruptive one — 4th I.R.

As India had its tyrant with technologies in form of Green Revolution (1960s, use of HYV seeds, irrigation) White Revolution (~~then~~ unprecedented growth in milk & meat production) etc. But since India had been a victim of the 1st I.R. (in form of colonisation), and not so much active in 2nd and 3rd, it becomes imperative for India to be a LEADER IN THE FOURTH I.R.



Ancient Indian history is replete with examples ~~to~~ which bear testimony to the fact that India was world leader in innovations. The magnificent water harvesting systems in sringverpur, chess pieces in Harappa, urban planning, road construction in Indus valley civilisation, medieval Astronomical structures like Jantar Mantar, scholars like Aryabhatta, Bhaskaracharya, Charaka, Sushruta (medicine) etc are ~~to~~ name a few egs of our bright past. India's Independence struggle ~~was~~ was also possible by an ideological revolution and development of self-sufficiency by our ~~for~~ nationalist leaders. The colonial era did witness a few technological developments - Railways, telegraph etc, but the real progress in industrialisation was seen in 2nd post independence (Manufacturing being focus area in 2nd Five year Plan).

From being a third world country, India today stands as ~~third~~ largest economy in the





World being ~~world~~ leader in IT sector
fuelled by Liberalization, Privatisation and
Globalisation ~~signatures~~ in 1991. But there is
a darker side if we look at the stark
stark inequality
and poor social sector indicators. India is
home to the maximum ^{10.4} hungry people (IFRI
Global Hunger Index 2016), with about 23% of
people living below poverty line. Indian has
children show - 40% malnutrition, 36% stunting
and 40% wasting. The ASER 2016 Report showed
that 42% of children in Class II cannot read/solve
Class II problems. The latest Labour Bureau findings
also highlighted high unemployment rates in our
country. The urgency of Embracing Fourth Industrial
Revolution must be seen in this light.

Fourth Industrial Revolution does not
only mean technological diffusion, but also a
social transformation of our social landscape.



✓ Very
good ver
data

Have it to
next
para

✓ good



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Answer Booklet

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• Health - Initiatives like telemedicine, NeHA (National eHealth Authority), MAA (Mother's absolute affection for promoting breast feeding in mothers), e-monitoring of mid day meal, ISS EHR (Electronic Health Register), e-pharmacies, integrating AYUSH with IT, nanobots for targeted drug delivery, 3D printing of organs, damaged tissues etc are some of the egs which integrate 4th I R with our health sector.

Education - Tele-education, Remote education, Digital library, MOOC (Massive open online Courses), IT + SSA (sarva shiksha Abhiyan), using computer aided learning, Shala Smita (online monitoring of Attendance), virtual learning, using augmented reality for practicals, etc can boost our education sector and improve the R&D in our university, along with giving a boost to industry-academia linkage.

Employment - Shram suvidha Portal, Twitter sewa,





online counselling, Shramik Jayate Program, National Career Service portal, vocational IT training, ~~inter~~ ^{global} ~~online~~ collaborations (AIAN, AIA), etc can help in skilling our population, and making them employable.



Women Empowerment - work from Home facility, Panic buttons in mobiles, central monitoring of Complaints of women, ~~online~~ grievance redressal etc can go a long way in ~~make~~ enhancing safety and Security of women.

Divyaangs - Accessible India campaign to make barrier free access for differently ~~abled~~ can make use of latest ~~technologies~~ (Braille compliant websites, etc)

SC/ST, landless labourers, elderly, MSMEs, and other vulnerable sections can be made more empowered by ~~the~~ aid of technology (online pension, stand up India, etc).



The Constitution of India mandates in Article 51A (Fundamental duties) to inculcate scientific temper and innovative attitude in citizens. This forms the basis of India's Embracement to 4th I.R. Moreover the Government has taken the lead in form of Digital India which will usher in e-Kranti and e-Governance. This would enhance transparency, accountability and responsiveness in decision-making and also lead to an effective, efficient and inclusive governance. Initiatives like online grievance redressal, Right to Information, Citizen charter, Indian Railway's e-Sat Nivaran, Twitter seva by Ministry of Corporate Affairs, online solution for Indians in abroad by Ministry of External Affairs etc enhance the positive perception of Govt in eyes of people strengthening the democratic fabric of our nation. MyGov Portal also helps in citizen centric decision making by inculcating community participation.





Ministries - Science, Earth science, Env and Forest, Health and Family Welfare etc is needed to build a comprehensive and holistic roadmap for adopting 4th I.R.

The recent demonetisation drive and push to cashless transactions to weed out corruption, black money and terror funding requires even ~~more~~ stronger cyber security norms and a digital infrastructure which is possible by embracing 4th I.R. Also the GST requires a GST Network (GSTN) which requires seamless digital connectivity. The convergence of Digital India, National open Fibre Network, Skill India (for skilled manpower and cyber experts), Make in India (for ^{indigenous} electronics manufacture), Startup India and Stand up India (for more initiatives like Paytm) and TAM Trinity (Jan Dhan, Aadhar, Mobile) is required to truly reap the benefits of 4th I.R.





A successful case study of utility of adopting 4th I.R. can be seen in the growth of ISRO in our country with whose satellites (RESOURCESAT, INSAT, IRNSS-NAVIC, Astrosat, Swamyet etc) has had positive multiplier effects in all fields - navigation, farmer welfare, disaster management, defence, weather monitoring etc. Moreover promoting innovative spirit by programmes like NDHI, CURIE, Startup India would only exacerbate this effect.

In the age of sustainable development Goals (SDG 2015-30), it becomes even more imperative to use technology for environment protection. Schemes like FAME (Hybrid and electric vehicles), pod vehicles, taxi services - Uber, Ola etc, energy efficient LEDs (UJALA Programme), DBT for kerosene, Ujjwala scheme (CPLA cylinder), Green Buildings, and passive solar heating, solar dome by CIE,

etc would help us in achieving our INDS
(as promised in Paris summit) and in this
way the 4th I.R can become a reducer of
the problems created since the 1st I.R (pollution,
Global warming, ozone depletion etc).

However, there are a few challenges
that must be taken note of. The fruits of the
4th I.R should not be lopsided. It must not
make the rich richer and poor poorer and
exaggerate the already existing North-South
technological divide. World Bank in its World
Development Report 2016 titled DIGITAL DIVIDENDS
has showed that 60% of world's population is
still offline. This digital divide would hamper
the flow of technology, innovation and its
benefits to the lower strata in the pyramid
and defeat the principle of inclusiveness and
equity. Secondly there is a fear that automation



would take away 80% of the manual jobs in countries like China, US, India (WB Report). This would lead to large scale unemployment, lowered standards of living and crime. Issues of net neutrality, cyber warfare and cyber terrorism, unethical hacking, misuse of private data, state surveillance on citizens, robotic crimes, designer babies (due to 3 parent technique, cloning, genetic engineering) etc also arise with spread of 4th I.R.

It is therefore the dire need of the hour to take note of the above said problems and safeguard cyber security, privacy and jobs of citizens along with upholding ethical and moral principles in digitalisation. Also state intervention is necessary to ensure equitable distribution of digital benefits.



UPSCTREE - Personalised Feedback

Name- **Saumya Pandey**
Topic- **Embracing 4th IR**



Dear Saumya,

Your essay makes an effortless reading. Your writing abilities and usage of statistics are commendable. Keep it up. Although it is a beautifully written essay, it misses few key points/critical aspects and there is need for improvement in certain aspects.

Here are few ideas to enrich the content of your essay.

Content wise:-

The essay should answer few critical questions :-

1) We all know that 4th IR is knocking at our doors, but can 'all' country embrace it equally.

2) Then bring in digital literacy and technological competence into picture to see if it will be embraced by all in equal proportion.



3) Different countries have different level of technological competence, so 'under developed' 'LDC's can not embrace it given their high illiteracy rate.

4) Then bring in Indian dimension:- Can India embrace it?

↓
Yes

because



- 4th IR is built upon 3rd IR and we have core-competency in this sector
- Recent reforms along with a democratic set up makes technology transfer possible.
- A great diaspora and few key people behind the tech change are Indians; so in short, we can leverage our strength here and embrace it.
- As far as capacity is concerned we are 'up' for it.



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No because → Although we have core-competency, yet are literacy, especially functional literacy and digital literacy is very low. That means we can build great things, but the question is can everyone benefit from it? (Especially 4th IR being a knowledge driven & revolution)

→ few hindrances are:-
1) Regional disparity and par social indicators inhibit us from reaping the benefit of this great opportunity.

you can explore on these lines.

5) Then the most important question is:-
Should we embrace it?

↓
Because more than 60% are engaged in agriculture and we are trying to do an 'IR' in manufacturing and if we leverage '4th IR' then 60% of Manufacturing jobs will be lost to automation & robotics.



↓
given are ~~high~~ ^{huge} man-power (Mostly unskilled or low skilled) the next question is if we go ahead with 4th IR then where we will employ the bulk of our youth?

↓
To answer this question you can bring in the 'ageing globe' and 'young India' and then show how India can be human resource power house of the globe, if we skill our youth in new-tech (instead of soon-to-be-obsolete tech) and along with robust foreign policy.

So this portion deals with 4th IR & employment.

6) Then you can discuss what we can do it embrace it ⁱⁿ ~~in~~ and minimize bad spillovers such as inequality, disparity etc

7) Also link 4th IR with → governance & data mining (AI)
→ physical-cyber connection & Internet of things and how it will change our way of life
→ overall impact on different

you have dealt with this but minimize the naming of program. Take names of key programs only.

sectors:-
✓ agriculture ✓ health
✓ defense & geopolitics
✓ education



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E.g :- defense (Robotics warfare, drone swarm etc)

↳ its impact on

- ↳ socio-mathematical milieu
- ↳ economic impact

↳ its impact on

→ individual
 child/youth
 women
 men

→ Societies
 Developed
 developing
 under developed



While discussing impact, also suggest how we can minimize the 'bad impacts' (such as bridging the generational gap etc).

8) Also discuss can 4th IR be the solution to the biggest threats of 21st century - environmental crisis, terrorism etc.

In conclusion, you may minimize the paras dedicated to chronology of ~~4th~~ IRs (i.e. Minimize the obstacles), bring in more critical/thoughtful aspects to the essay, keep examples of programs minimal (only mention few key programs), segregate the content into themes (one para - one theme) so that a better structure emerges.

In sum, you have good writing abilities, work on representation & critical aspects and your score will be one of the highest.