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|-----------|---|---|---|---|---|---|
| TEST CODE | 7 | 1 | 3 | 3 | 0 | 2 |
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MGP 2024

Time Allowed : Three Hours  
समय : तीन घंटे

**ForumIAS**

Maximum Marks : 250  
अधिकतम अंक : 250

## GENERAL STUDIES / सामान्य अध्ययन

|                                         |               |               |                                                                            |
|-----------------------------------------|---------------|---------------|----------------------------------------------------------------------------|
| Name Of Candidate<br>परीक्षार्थी का नाम | Utkarsh Patil |               |                                                                            |
| Roll No./अनुक्रमांक                     | 1910110602    | Medium/माध्यम | English <input checked="" type="checkbox"/> हिंदी <input type="checkbox"/> |
| Center Code/परीक्षा केंद्र              |               | Date/दिनांक   | 11/ August                                                                 |

\*Center Code : For Online - 1900 / Delhi : Karol bagh - 1901, ORN - 1902, Mukharji Nagar - 1903 / Patna : Boring Rd. - 2001 / Hyderabad : Jawahar Nagar - 2101

| INDEX TABLE / अनुक्रमणिका                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                          |                              | INSTRUCTION / अनुदेश                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Q. No.<br>प्र.सं.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Max. Marks<br>अधिकतम अंक | Marks Obtained<br>प्राप्तांक | <p>1. Please do furnish Name, Email, Roll No and Mobile in the answer sheet.<br/>कृपया उत्तर-पुस्तिका में नाम, ईमेल, रोल नंबर और मोबाइल नंबर भरें।</p> <p>2. There are <b>TWENTY</b> questions printed in <b>ENGLISH &amp; HINDI</b>, all questions are compulsory.<br/>उत्तर पुस्तिका में अंग्रेजी/हिंदी में बीस प्रश्न दिए गए हैं, सभी प्रश्न अनिवार्य हैं।</p> <p>3. The number of marks carried by a question/part is indicated against it.<br/>प्रत्येक प्रश्न/भाग के लिए निर्धारित अंक उसके सामने अंकित किए गए हैं।</p> <p>4. Answers must be written in the medium authorized in the admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided.<br/>उत्तर प्रवेश पत्र में अधिकृत माध्यम में लिखे जाने चाहिए, जो कि दिए गए स्थान में इस प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के कवर पर स्पष्ट रूप से लिखा जाना चाहिए।</p> <p>5. Word limit in questions, if 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.<br/>प्रश्नों में शब्द सीमा, यदि निर्दिष्ट हो, का पालन किया जाए। प्रश्न-सह-उत्तर पुस्तिका में खाली छोड़े गये किसी भी पृष्ठ या पृष्ठ के भाग को स्पष्ट रूप से काट दें।</p> |                                         |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                          |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                         |
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| Total/कुल अंक                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 250                      |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                         |
| Examiner's Discretion/मूल्यांकन कर्ता का विवेक :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                              | For Student Only / केवल परीक्षार्थी प्रयोग हेतु                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          |                              | Start Time/प्रारंभ करने का समय :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | End Time/समाप्त करने का समय :           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          |                              | 3 hrs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8 mins                                  |
| Total Marks/कुल अंक :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                          |                              | Mode Of Examination/<br>परीक्षा की विधि :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          |                              | Online/ऑनलाइन <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Offline/ऑफलाइन <input type="checkbox"/> |
| *Examiner's Discretion is the marks awarded at the discretion of the examiner based on your overall impression, on the basis of (but not limited to) your handwriting, presentation, use of diagrams, flowcharts, facts and figures or absolutely anything that he/she liked in your copy.<br>मूल्यांकन कर्ता का विवेक अंक, आपकी लिखावट, प्रस्तुति, आरेखों के उपयोग, फ्लोचार्ट, तथ्यों और आंकड़ों या समग्र रूप किसी अन्य विषय वस्तु, जो मूल्यांकन कर्ता को आपकी कॉपी में पसंद आयी के आधार पर (लेकिन इन्हें तक सीमित नहीं) पर दिए गए अंक हैं। |                          |                              | For Office Use Only / केवल कार्यालय प्रयोग हेतु                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          |                              | ECN CODE/<br>ईसीएन कोड :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Evaluation Date/<br>मूल्यांकन तिथि :    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          |                              | EG/ईजी :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                         |
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**Note:** Students are expected to incorporate suggestions from the feedback provided in the answers. Discussion classes for the tests are also available online in your portal to aid in your preparation. Further, students are requested to see the good copies of the tests and learn from them. You can also discuss your copy with a Mentor and discover ways and means to improve your answers, or if you have any issues with this test / copy. Ask specific questions, to get specific answers.

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## EXAMINER'S REMARKS

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### CRITERIA FOR THE FEEDBACK SECTION AT THE END OF EACH QUESTION

1. **AWIS = Answered What is Asked.** This means whether you have addressed the core demand of the question or not. Addressing the core demand of the question gets you an objectively fair score. It is examiner's perception if you have understood the question and if you know the answer in the first place. Creative answer writing, sometimes missing the core demand, may fetch very high or very low scores, and exposes your answer to the subjectivity of the examiner.
2. **CD & VA = Content Density & Value Addition.** Examiner will evaluate the quality and quantity of your content in the answer. In the same word limit and space limit have you (a) written what is asked (b) gone beyond what is asked (c) enriched answers through combination of ( but not all!) suggestions, ideas, quotes, flowcharts, diagrams, facts and figures, data etc. This affects objective components of assessment.
3. **S & F = Structure & Flow =** Whether you have structured your answer properly or not. Whether the answer has been broken into parts and sub-parts and each part has been addressed appropriately or not. Whether the flow of the answer is maintained. Affects both subjective and objective components of assessment.
4. **P & R =** How your answer performs on the criteria of **presentation, ease of read, clarity and apparent effort** in writing the answer. This affects the subjective components of assessment.



Q.1) How far do you agree that a robust domestic demand is the most important driver of India's economic growth? What are other factors that influence the growth trajectory of the country?

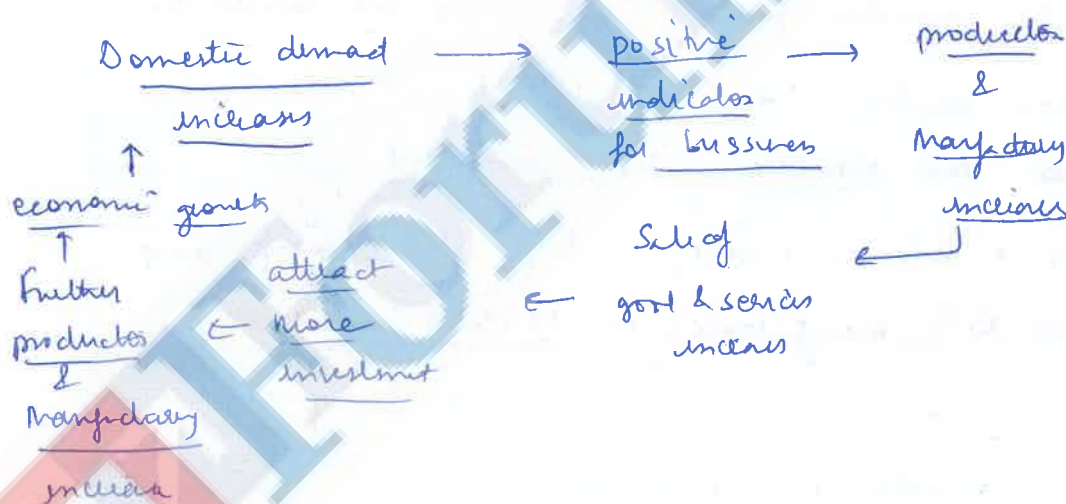
(10 marks, 150 words)

आप इस बात से कहां तक सहमत हैं कि मजबूत घरेलू मांग भारत की आर्थिक वृद्धि का सबसे महत्वपूर्ण चालक है? अन्य कौन से कारक हैं जो देश के विकास पथ को प्रभावित करते हैं? (10 अंक, 150 शब्द)

Private fixed final consumption expenditure (PFCE)  
forms the largest component to GDP growth.  
It contribute ~60% to GDP thus being the  
largest driver of economic growth.

Domestic demand is the most important factor

1) It creates a virtuous cycle of growth.



2) It promotes investment by creating demand in the economy. eg - investment by e-commerce firms.

3) Government also through various measures try to increase domestic demand eg -

- tax rationalisation or cut in repo rate.
- 3) It boost production & manufacturing thus add to GDP growth.
- 4) However, domestic demand must be put into increase supply of goods & services other hurdles economic growth as - high inflation, inflation is current account deficit.

## Other factors affecting economic growth

- 1) Ease of doing business - It affects investment in the economy.
- 2) Fiscal & Monetary policy as repo rate decides the loan creation hence investment. Fiscal policies like tax incentive boost investment.
- 3) Government schemes & policy - like PLI group giving focus to manufacturing in 14 sectors.
- 4) Human Resource - skilled personnel are essential to increase production in micro sector.
- 5) Infrastructure - as Roads, electricity
- 6) Global factors - as uncertainty due to Russia-Ukraine war hurdles growth aspects.

Demand in domestic market is the most significant aspect however other factors like infrastructure etc must be given equal importance.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.2) Macroeconomic stability is not solely dependent on the quantity of foreign exchange reserves, but also on the strategy and sources on which they are built. Discuss in an Indian context.

(10 marks, 150 words)

व्यापक आर्थिक स्थिरता न केवल विदेशी मुद्रा भंडार की मात्रा पर निर्भर करती है, बल्कि उस रणनीति और स्रोतों पर भी निर्भर करती है जिस पर वे निर्मित होते हैं। भारतीय संदर्भ में चर्चा कीजिए। (10 अंक, 150 शब्द)

Central bank, RBI in India maintains forex reserve to meet unforeseen events and maintain macroeconomic stability. The forex reserve cover range from 6 months - 15 months import (which keeps varying)

Dependence on Quantity of Reserves

1. It is the most important factor to determine the macroeconomic stability using forex reserve.
2. Simply, the higher the forex stock → longer the RBI is able to meet an uncertain events. eg. With current stock ~ 600 B USD, RBI can meet 6 months import cover.
3. It also increases the capacity of RBI to intervene. which means RBI can take large scale intervention with large reserve stock.

eg - 1991 - RBI able to intervene max 7 days in case of disruption  
2024 - 6 months - 9 months

Depend upon strategy & sources also

- 1) Sources - the varying are the sources of the forex reserve → more robust it is to meet unforeseen events.  
eg. RBI maintain forex in Dollar, SDR, Reserve etc
- 2) Varying sources make the Reserve less susceptible to uncertainty eg - USA putting sanctions on Russia & freezing its dollar reserve outside. Now in such case reliance on one source impact negatively
- 3) Strategy - strategy to use the reserve is equally important. → intervention to stabilise the macroeconomic depend upon factor as
- Scale of intervention

↓

large or small

Scale

time of intervention

(when to intervene)

Frequency of intervention
- other tools used to intervene  
drag into Reserve like increase interest rate
- Forex Reserve are cornerstone of ensuring macroeconomic stability. However, fiscal intervention play equally important role.

## Feedback

(For OFFICE use only)

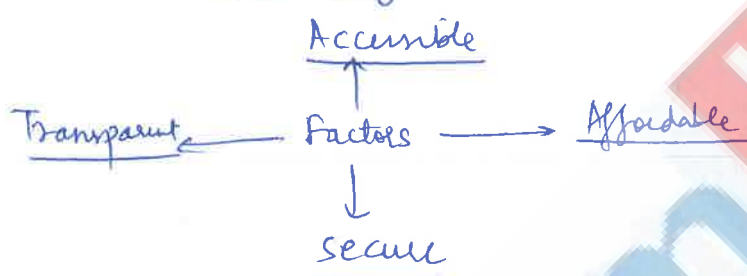
| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.3) DPI (Digital Public Infrastructure) is a critical enabler of digital transformation for both businesses and citizens; however, it comes with its own set of challenges. Examine. (10 marks, 150 words)

DPI (डिजिटल पब्लिक इंफ्रास्ट्रक्चर) व्यवसायों और नागरिकों दोनों के लिए डिजिटल परिवर्तन का एक महत्वपूर्ण प्रवर्तक है, हालाँकि, यह चुनौतियों के साथ आता है। परीक्षण कीजिए। (10 अंक, 150 शब्द)

DPI are digital tools, platforms, application & mechanisms that help in the process of governance and service delivery.



Enabler for businesses

1. Help business in opting for digital solutions

eg - IndiStack a DPI ~~en~~ which is open access set of applications help businesses to opt them.

2) Help business in digital delivery of services to customers eg - ONDC provide platform for business to participate in e-commerce.

3) Help ~~to~~ in taking digital transactions or with UPI, Bharatpay.

4) Fasten approvals - like registration on online portal like - Udyam portal

- 5) Easy access to credit digitally as- MSME through account aggregators can access credit.  
Enable for cities.
- 1) Digital access to services & entitlements as- access to digital land record on Bhoomi portal, entitlements like subsidies through PBT.
- 2) Digital identity for access to services as Aadhaar.
- 3) Grievance Redressal - through portal like CPGRAMS.
- 4) Digital empowerment - Aadhaar, UPI, e-Sewa.
- 5) Access to education & healthcare - as- NISHTA app, e-Sanyasani.

Challenges → ① Issue of data protection & care of cyber crime / data breach like - Aadhaar data leak.

② Lack of equal access to all → Infrastructure on internet, devices.

③ Systemic errors gender divide → Lack of digital literacy is an exclusion of beneficiaries in MANREGA due to Aadhaar issue.

Need is to → Impart digital literacy & awareness.  
Ensure data protection laws are robust  
Use of tools as- firewall, domestic cloud & server  
Take to gender dimensions.

As PM said about the potential of DPI that with one click one can bring smile on million faces.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.4) The skewed emphasis on certain crops has distorted the cropping pattern in India, which has led to grave socio-economic and environmental consequences. Elaborate. (10 marks, 150 words)

कुछ फसलों पर असंतुलित जोर ने भारत में फसल पैटर्न को विकृत कर दिया है, जिसके कारण गंभीर सामाजिक-आर्थिक और पर्यावरणीय परिणाम सामने आए हैं। विस्तार से चर्चा कीजिए। (10 अंक, 150 शब्द)

Cropping pattern refers to the geographical distribution of crops. It is highly skewed towards grain crops (~60%) in which Rice & Wheat are majorly grown (40%). This skewed emphasis on few.

### Socio-economic consequences

- 1) Regional disparity - Focus on few crops particularly under green revolution led to regional disparity into focus on few states as Punjab, Haryana, TN etc.
- 2) Decline in productivity & farmers' income - These crops are highly input intensive thus reducing profitability causing decline in productivity hence income.
- 3) Decline in private investment in agriculture - as disposable income is less due to poor income.
- 4) Social unrest in certain regions - due to losses or poor productivity as - Sugarcane growing region in Maharashtra; Farmers

commuting suicide.

4) Migration to other regions & Migration from agriculture to other activities - one impact of skewed focus on few & what else

5) Poor social outcomes - as healthcare & education as

6) Poor Nutrition. disposable income is less.

Consequence on environment

1) Declining in soil fertility as - NPK use in 8:3:1 Ratio, ideal being 4:2:1

2) Pollution of water bodies - as eutrophication due to farm runoff.

3) Neglect of indigenous varieties as - Hybrid seeds used for Rice neglecting Savara, Kodo etc

4) Loss of biodiversity - as only few crop getting focussed

5) More GHG emission - Rice & Wheat, sugarcane release more CO<sub>2</sub> in atmosphere.

6) Decline in water table - due to increased irrigation.

Need to think of 2nd green revolution which is green in real sense, caters to the negative consequences of skewed focus on few crops. Promote climate-sensitive and region specific cropping pattern.

## Feedback

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| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.5) Private participation in propelling India's space journey is widely acknowledged but is yet to be fully tapped. In light of the statement, analyse the hurdles faced by the private sector and also recommend measures to unlock greater private participation in the space economy.

(10 marks, 150 words)

भारत की अंतरिक्ष यात्रा को आगे बढ़ाने में निजी भागीदारी को व्यापक रूप से स्वीकार किया गया है लेकिन अभी तक इसका पूरी तरह से दोहन नहीं किया गया है। कथन के आलोक में, निजी क्षेत्र के सामने आने वाली बाधाओं का विश्लेषण करें और अंतरिक्ष अर्थव्यवस्था में अधिक निजी भागीदारी को बढ़ाने के उपायों की भी सिफारिश कीजिए।

(10 अंक, 150 शब्द)

Indian space market currently at ~9 B USD is poised to grow to 44 B USD by 2033 (Inspac). Thus highlighting the potential role private sector can play.

Private Participation → Rocket building as - Agni by AgniKoot  
→ Engine (cryogenic) as - Kalam by Skyroot  
→ Private Launching site being developed.

However, private sector faces certain challenges

- 1) Lack of access to credible sources of financing. As it is a developing sector for private players so lack access to Venture capital or Institutional loan.
- 2) Lack access to technology - as it is highly technical field.
- 3) Lack mentorship & guidance
- 4) Space sector has been a monopoly of ISRO till now - ISRO being well established & highly competitive pose challenge for new entrants.

- 5) Risk prone & high rate of failure in space sector with new launches.
- 6) Lack of required skill - As it is a highly technical field.
- 7) Highly capital intensive & less lucrative.

Measure to be taken

- 1) An independent regulator need to established with requisite authority as- INspace has been created.
- 2) Technology transfer from ISRO - ISIL has playing this role by acting as a facilitator.
- 3) Handholding by government by - providing access to subsidised credit. It can be included in PSL large of banks.  
OR grants.
- 4) Support from ISRO - as done in case of developing Agnikul, ISRO providing technical support.
- 5) Create common pool of infrastructure that private player can use as- launch site.
- 6) Provide market access to global customers as- NSIL.
- 7) Human resource development of space engineering courses.  
It is a highly budding sector - With proper policy & infrastructure sector support private player can play a several role in growth of space economy.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.6) With recent advances in technology, robots are now equipped to perform more than just conventional and routine tasks, which brings new opportunities as well as risks. In this context, evaluate the future potential of the robotics sector. (10 marks, 150 words)

प्रौद्योगिकी में हालिया प्रगति के साथ, रोबोट अब पारंपरिक और नियमित कार्यों के अलावा और भी बहुत कुछ करने में सक्षम हैं, जो नए अवसरों के साथ-साथ जोखिम भी लाता है। इस संदर्भ में रोबोटिक्स क्षेत्र की भविष्य की संभावनाओं का मूल्यांकन कीजिए। (10 अंक, 150 शब्द)

'Robotics' is the use of machines to carry out tasks which generally requires human intervention. It impacts speed, efficiency & increased productivity.

More than conventional task

- task that need human intelligence
- Automation of task
- Flexible tasks not repetitive

It brings opportunities & risks for its future potential

\* Positive scope / potential

1) Improved production capability - with Automation of work <sup>by robots</sup>, productivity can increase manifold as - Car production by robots.

2) Reduced risk to human life - Robots can be employed to carry out riskier jobs as - mine detection.

3) Carry out complex tasks - as carrying out surgery.

- 4) Reduced error due to human intercalation - Human error can be eliminated as- Robots used in signalling at Railway
- 5) Addres issue of lack of skilled/human Resource - Robots can be easily trained for different roles.
- 6) No human bias in operation / decision making.
- 7) Quicker decisions based on huge data set improving efficiency.
- 8) Improve care of living - as self driving cars

## Negatives -

- 1) Misuse of Robots Eg - as carrying out war using robots as- drones etc, or use by unlawful groups
- 2) Robots may be susceptible to be hacked thus impacting operation.
- 3) Data breach may be an issue where data may be stolen.
- 4) Robots becoming super robot or sentient impacting human existence.
- 5) Barrier in operation of intelligent robots.
- 6) Regulatory hurdle in ensuring accountability as-a case come to light where car on autopilot met accident now whom to hold responsible.

Sector is highly evolving need us to carefully weight the potential benefit & opt a precautionary approach.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.7) Write an explanatory note on the causes and impacts of avalanches. Also, highlight the various strategies to mitigate its impact, with a special emphasis on NDMA guidelines. (10 marks, 150 words)

हिमस्खलन के कारणों और प्रभावों पर एक व्याख्यात्मक नोट लिखिए। साथ ही, NDMA के दिशानिर्देशों पर विशेष जोर देते हुए इसके प्रभाव को कम करने के लिए विभिन्न रणनीतियों पर प्रकाश डालिए। (10 अंक, 150 शब्द)

Avalanche refers to huge scale displacement of snow at a faster speed bringing havoc & destruction in downhill regions.

## Causes of Avalanche

- 1) Natural causes → as extreme snow fall / Rain in the region  
→ Rising temperature leading to melting of ice  
→ Earthquake may trigger or GLOF may trigger
- 2) Terrain - 1) Extreme slope in the region  
2) Rock, cliffs can cause sudden fall of large mass of snow
- 3) Human factor - 1) as increased human activities in region → tourism  
→ Road construction → dams etc

## Impact

- 1) Loss of life - both human & animal life is lost as - in Kedarnath case
- 2) Loss of property - houses in the hilly region, businesses are destroyed.

- 3) Loss to economy 1) as cost of mitigation & rescue  
2) economic activity impacted → local business → tourism
- 4) Loss of infrastructure - as - Hospitals, roads etc
- 5) Environmental loss - 1) Land gets denuded 2) may trigger further disasters as - land slide, floods.

## NDMA guidelines to mitigate

- 1) Develop early warning system - like predicting weather using doppler radar.
  - 2) Risk assessment & mapping of disaster prone regions - as done by ISRO using Satellite data.
  - 3) Structural measures - barriers & fences created.
  - 4) Community awareness & participation - train them in case of disaster how to protect themselves.
  - 5) Emergency preparedness & response - Emergency rescue & evacuation plan, shelters, ration etc.
  - 6) Conduct further research & development to strengthen preparedness & response.
- Considering huge impact on human life & environment a comprehensive planning & mitigation strategy is a must.

### Feedback

(For OFFICE use only)

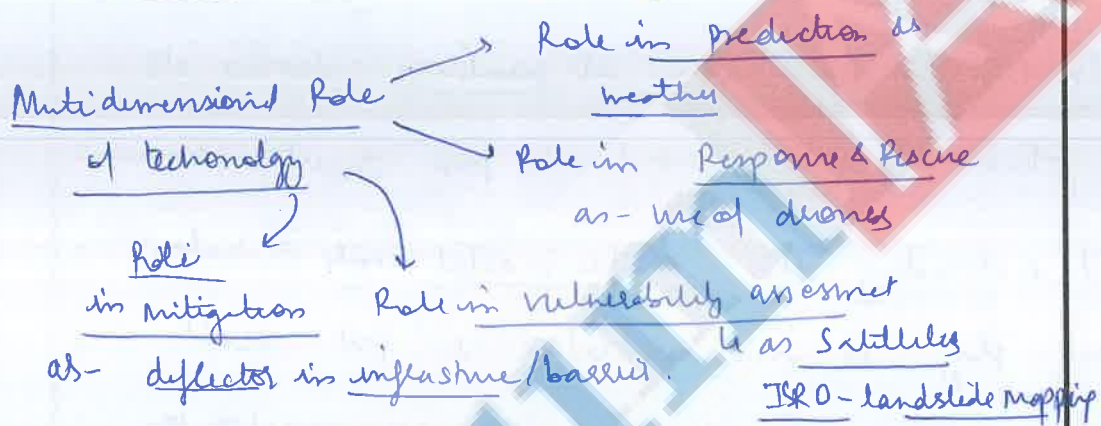
| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.8) Technology plays a multidimensional role in augmenting the disaster management apparatus of the country. Discuss. Also, bring out the measures needed to enhance the usage of such technologies in managing disasters. (10 marks, 150 words)

प्रौद्योगिकी देश के आपदा प्रबंधन तंत्र को बढ़ाने में बहुआयामी भूमिका निभाती है, चर्चा कीजिए। साथ ही, आपदाओं के प्रबंधन में ऐसी प्रौद्योगिकियों के उपयोग को बढ़ाने के लिए आवश्यक उपाय भी बताएं। (10 अंक, 150 शब्द)

Disaster management refers to comprehensive approach adopted to mitigate the impact of disasters & adopt further to proactively lessen its impact.



Measures needed to enhance usage of technology in managing disaster

- 1) Data collection & Analysis - satellite imagery can be used to discuss & predict disasters as - Analysing vulnerability/size of glacial lake
- 2) Early warning system deployment - as doppler radar to predict rainfall so understand conditions for flash flood or Droughts.
- 3) Infrastructure & Human Resource development -

So, as to these technologies can be used at  
wide scale. Institutions that focus specifically  
on developing such technologies need to be established

- 4) Global collaboration - Like India can learn  
from Japan how better employ technology  
to manage disasters like earthquake.
- 5) Develop technology as - 3D printing, drones etc  
which can be used in post disaster response.

Understanding the multifaceted role technology  
can play it is imperative to put special  
focus on their development & encouragement on  
wide scale. Startups can be incentivised  
to come up with innovative technological  
solutions.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



**Q.9)** Outlining the various cyber threats faced by India, assess the state of the country's preparedness to deal with the same. (10 marks, 150 words)

भारत के सामने आने वाले विभिन्न साइबर खतरों को रेखांकित करते हुए, उनसे निपटने के लिए देश की तैयारियों की स्थिति का आकलन कीजिए। (10 अंक, 150 शब्द)

Cyber threats refers to crimes committed using cyber space. It include in itself → cybercrime

cyber  
war

cyber terrorism

## Cyber threats faced by India

- 1) Cyber criminal acts as - cases of cyber stalking, cyber bullying, data stealing eg of Sully deals faking identity of someone
- 2) Cyber warfare cyber space has become a non-traditional mode of war as - ~~1st~~ Attack on DRDO website, Attack on Mumbai panel sector.
- 3) Cyber terrorism - Such acts target sovereignty of India. Acts like - DDoS attack on AIMS website of Andhra data leakage compromises sovereignty

## State of preparedness

Various measures has been opted to tackle the evolving threat from cyberspace -

Legal measures - 1) IT Act 2008 - It curbed crimes committed using cyber space.

2) IT Rule 2021 - further put ~~obligation~~ <sup>obligation</sup> on Social media etc to ensure fair use of these platform.

3) Digital data protection Bill - ensure data is protected from unauthorised access. Establish a Board for the same.

4) Proposed - Digital India Bill to overhaul laws with respect to IT sector.

Institutional measures - → CERT-IN to deal with the case of ~~data~~ cyber crime as- cyber fraud.

→ NCTIPA - to protect critical infrastructure such as- Powerhouse, Nuclear plants etc

→ Cyber swachta Kendra - to provide tools to protect devices.

→ Other - guidelines to institutions to report in 6 hrs to CERT-IN, awareness as- cyber swachta pakshavada

However, dispute preparations there has been fire in case of cyber crime as NCRB data pub (2021-20% increase) which necessitates strengthening the current efforts.

Need is to incorporate guidelines given by Gulshan Rai committee to streamline the work of institutions, develop capability & tools like firewall etc and create trained workforce.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.10) Explain how the geographical location of India makes it extremely vulnerable to the menace of drug trafficking. What are the various internal security threats posed by drug trafficking?

(10 marks, 150 words)

समझाइए कि भारत की भौगोलिक स्थिति इसे मादक पदार्थों की तस्करी के खतरे के प्रति बेहद संवेदनशील बनाती है। मादक पदार्थों की तस्करी से उत्पन्न विभिन्न आंतरिक सुरक्षा खतरे क्या हैं? (10 अंक, 150 शब्द)

Drug Trafficking has become one of prominent challenges to internal security mainly due to our geographical location.

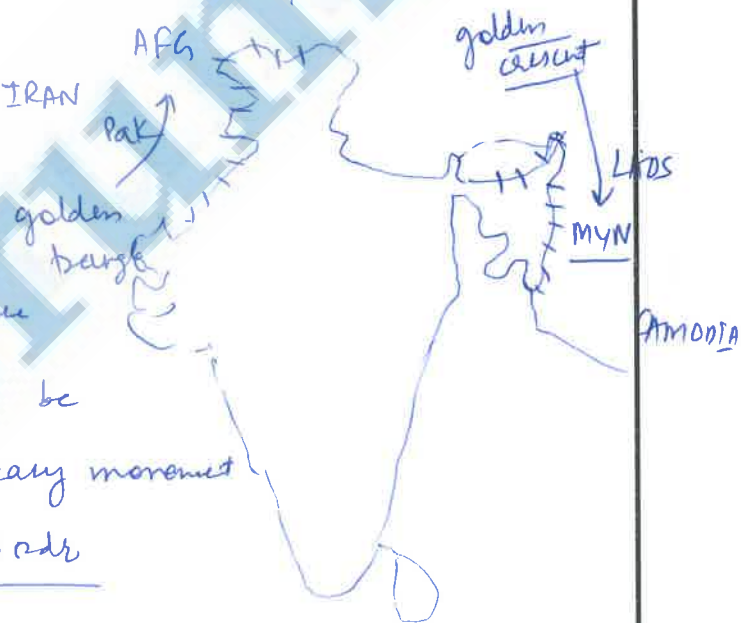
Role of geographical location

1) Located in vicinity of golden triangle and golden crescent which are hotspot of drug trafficking

2) Porous borders due to geographical features like river so, can't be fenced leading to easy movement as - Bangladesh Border

3) Located near unstable regimes like - Myanmar where military coup leading to instability

4) Role of non-state actors / state actors in our vicinity - like Taliban operating for drug trafficking in other countries as a revenue activity



5) Long coastal border - 7500KM which are difficult to guard - Recent case where cocaine was seized at Mandla port.

Various security threats posed are -

- 1) Law & order issue - Drug trafficking ~~case~~ instability in border areas as- North East areas bordering Myanmar as- Nagaland.
  - 2) Social unrest - as such activities increase criminal activities by drug addicts.
  - 3) Impact economy - where money move through illegal channels leading to money laundering & black money.
  - 4) Effect but in administration - which affect the efficient functioning of state.
  - 5) Corrupt the youths - by addiction to drugs, it leads to loss of their potential to Nation building.
  - 6) Nexus - as political nexus with such crime syndicate get established.
  - 7) Link with terrorist - by providing them financial support.
- A National security strategy which address the challenges in a holistic manner is the need of hour.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |

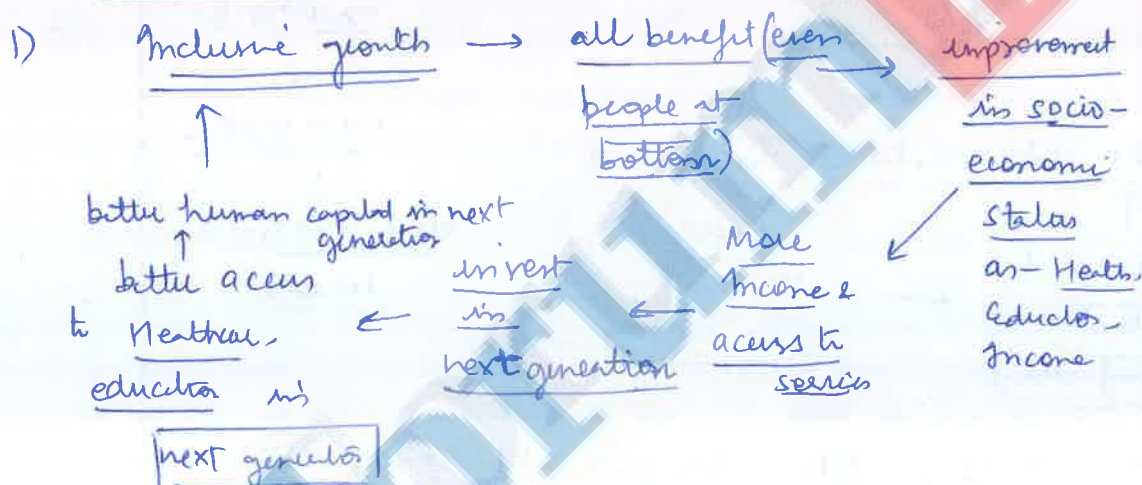


**Q.11)** Inclusive growth is a roadmap to intergenerational equity, redistribution of wealth, and employment generation. Explain. Also, discuss the steps taken by the government towards achieving inclusive growth. (15 marks, 250 words)

समावेशी विकास अंतरजनपदीय इक्विटी, धन के पुनर्वितरण और रोजगार सृजन के लिए एक रोडमैप है, समझाइए। साथ ही, समावेशी विकास प्राप्त करने की दिशा में सरकार द्वारा उठाए गए कदमों पर चर्चा कीजिए। (15 अंक, 250 शब्द)

Inclusive growth refers to when people at the bottom are not just passive beneficiaries but active contributors to the growth process.

Roadmap to intergenerational equity



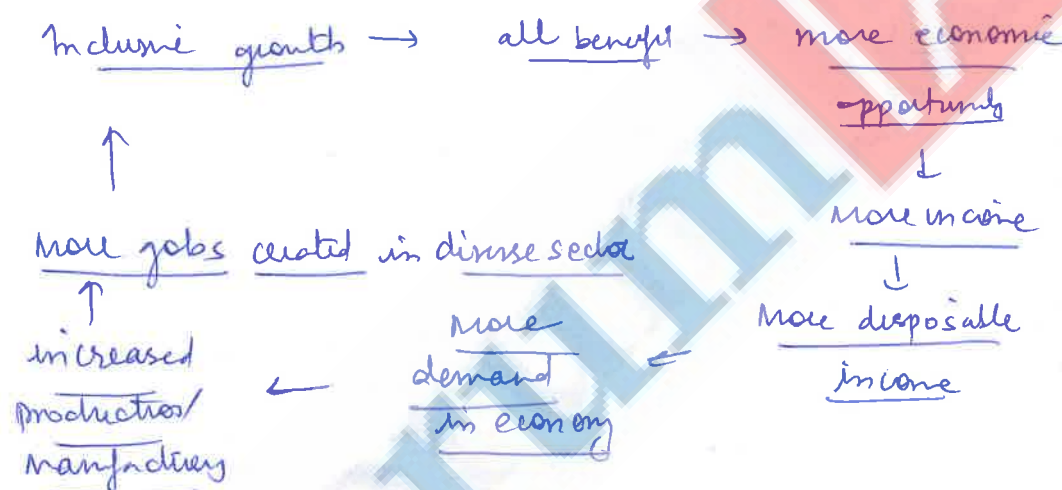
2) Redistribution of wealth

1) Inclusive growth ensure all reap from the benefit of growth process. → So, the wealth created in the process as income, assets are also then enjoyed by all. So, Redistribution of wealth.

2) As SBT report recently said that gini coefficient has improved from 0.462 to 0.43 thus reducing inequality as process of income growth leads to wealth distribution.

Employment generation

\* It creates a virtuous cycle of employment creation



Steps taken by government for income growth

1) Legal steps taken by government - to ensure a right based approach in growth process - as - Right to livelihood (MGNREGA Act), Right to education (RTE Act)  
Right to food (NFSA)

2) Targeted schemes to incentivize inclusive approach in - MGNREGA, creation of SHS by

DAY-NRLM, PM Kisan Samman Nidhi for farmer.

- 3) Access to formal credit - as PM-SVANidhi scheme, Mudra scheme
- 4) Promote entrepreneurship - as Stand up India, scheme
- 5) Make agriculture sector lucrative - as - Agriculture Infrastructure development scheme, PM-FBY.
- 6) Targeted steps for poverty alleviation as - providing access to free education, healthcare eg - Saakshar Bharat, Abhyas, Arogya Mandals
- 7) Promote MSMEs - are growth engine of economy and provide employment to 12 crore people.  
eg - RAMP scheme, Redefine MSME
- 8) PSL norms to provide credit to targeted sections & sectors.
- 9) Social security measures - as - PM-MANDAKTA, PM-APY, Jeevan Shakti Sam Yojana etc

Honourable challenges → high inequality (Oxfam - 1% has 40% wealth)  
Lack of awareness → Poverty (21% below poverty line)  
Leakages → Poor productivity of agri sector (employ 45%, 17% to GDP)  
Corruption

Need is to opt a comprehensive & holistic approach with mid course correction in intervention by continuous monitoring & assessment.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.12) Discuss the significance of Multimodal Transport System in achieving last mile connectivity, improving logistics efficiency, and addressing the twin problems of pollution and congestion. What measures can be taken to ensure efficient multimodal transport connectivity in India?

(15 marks, 250 words)

अंतिम मील तक कनेक्टिविटी प्रदान करने, लॉजिस्टिक्स दक्षता में सुधार करने और प्रदूषण और भीड़भाड़ की दोहरी समस्याओं के समाधान में मल्टीमॉडल ट्रांसपोर्ट सिस्टम के महत्व पर चर्चा कीजिए। भारत में कुशल मल्टीमॉडल परिवहन कनेक्टिविटी सुनिश्चित करने के लिए क्या उपाय किए जा सकते हैं?

(15 अंक, 250 शब्द)

Transport system in India is highly skewed to use of Roadways (68%) which necessitates to rationalise the transport system to achieve a Multimodal mix in transport.

## Significance of Multimodal Transport

- 1) Last mile connectivity - With a suitable combination of all these modes of transport everyone can be connected. eg - By UDAN scheme connecting N.E. Regions
- 2) Improve logistics efficiency - With current loss due to poor logistics upto 14-15% of GDP. Multimodal connectivity is essential.  
eg - 1. Railways are much cheaper than roadways so cost efficiency by connecting Road to Rail terminals  
2. Connecting Road & Rail to ports can help use waterways, which is cheaper, faster.  
3. Further, modal mix can help use airways for perishable items

3) main problem : congestion & pollution -

1) Modal Mix will allow that growth of roadways  
can be rationalised, & use of other modes

2) Other modes, like Rail & Water ways are promoted.  
less polluting as - Rail work on electricity & not  
use fossil fuel

- Ships use fossil fuel but fuel economy is high.

3) Congestion of Railways & Road can be addressed  
as suitable development of IWT (Inland water  
transport) & connecting it with Roads & Rail.

Measure that can be taken

1) Integration of ministries to form a ministry  
of transport - currently there are different  
ministries for different mode so, lack  
synchronisation.

2) Implementation of scheme in faster & judicious  
way like - Sagarmala scheme which  
envisages port led growth & connector  
to rail & road.

3) Developing other modes than Road on equal  
parity - A skewed focus has been on

Roadways and Waterways have been largely neglected. So, IWT under all lost identified routes should be developed.

4) Developing freight corridors and connecting it with road & water ways.

5) Promote modernisation & technological advancement to make it more efficient and -

1) Promote EVs on roadways.

2) Electrification of 100% Rail routes.

6) Use of ICT to establish coordination in different modes as - analysing road traffic & ensuring direction to avoid congestion.

7) Create more infrastructure - as laying of Rail lines, widening roads, more ferry services.

8) Encourage private sector participation in developing the transport sector.

Multimodal mix will lead to reduction in cost due to logistics to 6-8% by 2030 as envisaged in National Logistics Policy 2022.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.13) Highlighting the rationale behind declaring MSP, discuss various issues related to the MSP regime in the country. Also, critically analyse the efficacy of legalizing MSP towards ensuring financial sustainability in farming. (15 marks, 250 words)

MSP घोषित करने के पीछे के तर्क पर प्रकाश डालते हुए देश में MSP व्यवस्था से संबंधित विभिन्न मुद्दों पर चर्चा कीजिए। साथ ही, कृषि क्षेत्र में वित्तीय स्थिरता सुनिश्चित करने की दिशा में एमएसपी को वैध बनाने की प्रभावकारिता का भी आलाचिन्तात्मक विश्लेषण कीजिए। (15 अंक, 250 शब्द)

Minimum support price is price fixed by government (CACD) for certain agricultural commodities (23 crops). where government ~~also~~ guarantees to buy if price falls below it.

Rationale behind declaring MSP

- 1) For farmers' welfare 1) MSP guarantees a minimum income for farmers.
- 2) It protects farmers from ragies / fluctuations in prices due to Market dynamics,
- 3) Address extinction of distress in agricultural sector.
- 2) Consumer / Public in general benefit -
  - 1) Commodities like Rice, wheat produced are used to provide for distribution under PDS at nominal price. (67% covered under NFSA)
  - 2) Ensure food safety by production of certain commodity in certain quantity.

- 3) Other - 1) As building up buffer stock for emergency situation.
- 2) Maintain or decentrise production of certain commodity (as - recently government increased MSP of pulses).

## Issues Related to MSP

- 1) Environmental Issues - 1) MSP support water guzzling crops as - Rice, Sugarcane
- 2) Incentive production which is not suitable to local climate conditions as - Sugarcane in Maharashtra
- 3) Excess use of chemicals affect soil fertility.  
(eg - fertiliser and 8:3:1 (NPK) Ideal 4:2:1 (NPK))
- 2) Against Market economy
- 1) MSP doesn't allow prices to be determined on basis of supply & demand forces.
- 2) It leads to inflation as less is left in open Market)
- 3) Harper biodiversity - 1) Indigenous crops gets neglected 2) Millets have seen decline in area under cultivation.
- 3) Other - 1) Impact Nutritional safety as - only few crops get promoted

2) Dependent upon impact for pulses, oil seed.  
(Laugnt impact of pulses).

Analysis of efficacy of legalising MSP in

Positive factors - financial farmers sustainability

- 1) Legalising will extend a right band approach to farmers.
- 2) So, it will lead to gainer of benefit by all (currently only few states as Punjab, Haryana receive major benefit)
- 3) Legalising & diversifying will lead to diversification of production as well.
- 4) As fixed income, so will make agriculture → profitable → more disposable income → invest back → sustainable growth

However, challenges as well in sustainability -

- 1) Already, government has open procurement.
- 2) Legalising will only push already skewed production of crops → so, increase in income in short term as more farmer get benefit → but in long term → agriculture productivity decline → financial unsustainable

Need is to opt a holistic overview on efficacy of MSP. National farmers commission can be established to cater to needs of agriculture sector.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.14) Food Processing Industries (FPIs) can act as a bridge between the informal farming community and the formal industrial sector, which can help boost the rural economy. Examine.

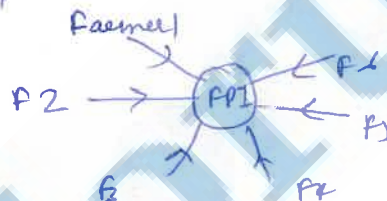
(15 marks, 250 words)

खाद्य प्रसंस्करण उद्योग (FPIs) अनौपचारिक कृषक समुदाय और औपचारिक औद्योगिक क्षेत्र के बीच एक पुल के रूप में कार्य कर सकते हैं, जो ग्रामीण अर्थव्यवस्था को बढ़ावा देने में मदद कर सकता है। परीक्षण कीजिए। (15 अंक, 250 शब्द)

FPI is growing sector in Indian economy. In last 5 years it has witnessed annual growth rate in the range of 8-10% and provide 12% employment in manufacturing sector.

Act as a bridge between informal farming sector and formal industrial sector

D Act as a hub to connect with farmers and provide them marketing opportunities



2) Provide for value addition to produce

as - converting mangoes to pickles

3) Provide access to industrial requirement hence market opportunities.

4) Promote contracts in agriculture sector.

5) Provide for standardization and quality assessment.

- 5) supply chain efficiency - by linking with industries. Reduce post harvest loss.
- 6) Provide with requisite infrastructure as storage & grading facility.
- 7) Promote innovation & adoption of technology as - use of sensors to monitor quality etc.  
Boost to rural economy
- 1) Guarantee income for farmers. As access to market increases and also value addition fetches higher prices.
- 2) Provide employment in processing sector as - grading, packaging, transport of commodities.
- 3) More investment - As PP1 invest in infrastructure such as - storage facility. This will further further boost rural economy.
- 4) Formalisation of micro enterprises in event sector by improved linkage with industries.

- 1) boost to other sectors or transport facilities will further incentivize ~~also~~ economic growth.
- 2) Increased disposable income - will increase demand in free economy → incentivize other economic activities. Also, more income will lead to higher investment in economy.
- 3) Branding of products → will create indie recognition and demand for product further incentivize eco growth.

Nonfarm challenges → Lack of infrastructure  
 as - Cold storage facility  
Lack of forward & backward linkages → Small and marginal farmers  
 as, land is highly fragmented (7857.)  
Lack of access to formal credit to FPI. → lack economy of scale

It is a growing sector with huge potential. Need is to streamline current policies and schemes so as to reap reap benefit on grounds. Schemes like PMFME, PMMSY need to be implemented in letter and spirit.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.15) Discuss the role of biotechnology in enhancing agricultural productivity. Also, highlight the concerns regarding the application of biotechnology in agriculture. (15 marks, 250 words)

कृषि उत्पादकता बढ़ाने में जैव प्रौद्योगिकी की भूमिका पर चर्चा कीजिए। साथ ही, कृषि में जैव प्रौद्योगिकी के अनुप्रयोग से संबंधित चिंताओं पर प्रकाश डालिए। (15 अंक, 250 शब्द)

Agriculture sector contribute to 17% of GDP while employing 45% of the total workforce in economy. Biotechnology can play a vital role in improving productivity.

Role of Biotechnology in improving productivity

- 1) Crops with higher productivity - Biotechnology can be employed to produce varieties of seeds with higher productivity as- HYV seeds.
- 2) Climate change resistant crop varieties - it improves productivity as- Recently ICAR has developed 100+ climate resistant crop varieties.
- 3) Pest resistance - like BT-cotton which is resistant to bollworm thus reducing loss due to pest attack.
- 4) Breed improvement - Biotechnology

tools like CRISPR-Cas9, Tales, Zinc Finger Nucleases can be used to enhance certain genetic traits in domestic animals like - higher milk production.

- 5) To prevent loss due to disease in animal  
Rearing - as biotech tools like - PCR can be used to create vaccine for disease like  
1) lumpy skin disease 2) OR yellow rot in plants
- 6) Creating healthier seeds in fisheries select on large scale and cheaper cost.
- 7) GM-crops - pest resistant & higher productivity  
as - Bt-Buyal, GM-Mustard.

### Concerns of Applications

- 1) Polluting the gene pool - As genetically modified crop like - Bt-cotton can cross breed naturally with indigenous / wild varieties thus affecting the whole gene pool.
- 2) Creating super pests / bugs - As pest resistant varieties as - GM-Mustard can lead to growth of further resistant pests.

- 3) Ethical concern - of altering the natural process like- selection of certain traits of crossbreeding between different species.
- 4) Affect the biodiversity - as only certain modified crops / animals get promoted due to favourable characteristics.
- 5) Lack of equal access - as MNC but IPR rights thus enjoying complete monopoly & hence higher prices  
eg - Monsanto company.
- 6) Not well evaluated for their long term impact on productivity, soil health, water content etc.

Further Need is

Strengthen the regulatory bodies

like - G EAC under MoEFCC

Closed field testing and monitoring results

Any decision based on ~~correct~~ science data

Global collaboration in developing a framework for regulation - FAO can play a role

Biotechnology has promising applications in agriculture sector. Need is to follow necessary precautions and safety measures.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.16) 5G technology is a breakthrough that finds applications across diverse sectors. Elaborate. How is 5G technology different from its predecessor? Also, list the various challenges associated with its effective rollout. (15 marks, 250 words)

5G तकनीक एक ऐसी उपलब्धि है जिसका अनुप्रयोग विभिन्न क्षेत्रों में होता है। विस्तार से चर्चा कीजिए। 5G तकनीक अपने पूर्ववर्ती से किस प्रकार भिन्न है? साथ ही, इसके प्रभावी कार्यान्वयन से जुड़ी विभिन्न चुनौतियों को भी सूचीबद्ध कीजिए। (15 अंक, 250 शब्द)

5G technology is an upgrade over 4G technology in telecom sector with respect to internet usages and other services.

## Applications across sectors

① Breakthrough → significant differences / advancement over 4G as speed, bandwidth, latency etc. Functions the applications in various fields due to high speed and other features as MPMO etc.

## ② Applications -

- 1) Telecom services - faster internet services, low latency in voice call, more ~~data~~ wider bandwidth.
- 2) Medical sector - 5G with high speed can be utilized for remote delivery of medical services as - e-consultations, remote surgery.

- 3) Manufacturing sector - can be utilised in automation and data analysis using 5G and IoT.
- 4) Service sector - improve quality of services  
as - better consumer services, customer care services.
- 5) Applications in Science & Research - can be utilised in data analysis using big data analysis and 5G as - protein structure, drug discovery.
- 6) Others - as edge computing, cloud computing, more secure network, use in defense sector, agriculture (as - smart agriculture), transport sector (e-vehicle) etc.

How different from predecessors

|                   | 5G                                  | 4G                                |
|-------------------|-------------------------------------|-----------------------------------|
| <u>Speed</u>      | has higher speed upto 1Gbps maximum | lower speed maximum upto 100 mbps |
| <u>Band width</u> | Wider band-width                    | comparatively narrower            |

|                    |                                                  |                                                        |
|--------------------|--------------------------------------------------|--------------------------------------------------------|
| Latency            | very low<br>is <u>micro second</u><br>(0.01 sec) | comparatively higher<br>upto 1 sec)                    |
| Energy of airwaves | high energy<br>upto 30 GHz                       | lower energy                                           |
| Technology base    | MIMO,<br><br>use of amplifiers must              | use <u>VOLTE</u> , et<br><u>4G</u> ,<br><br>not needed |

Challenges - 1) First time with 5G is poor penetration power of 5G signals thus affecting service quality.

2) Huge infrastructure cost - as need to deploy signal amplifiers at shorter distances.

3) Cost of providing services higher.

4) Dependence on input for Telecom related equipment for 5G infrastructure.

5) Need of newer devices that are compatible to 5G so, user cost increases.

5G technology has huge potential to revolutionize the delivery of services and governance. Ensuring equality of access becomes important.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.17) Discuss the repercussions on marine ecosystem and economy resulting from the combined effects of ocean acidification, ocean warming, and oxygen loss. (15 marks, 250 words)

समुद्र के अम्लीकरण, समुद्र के गर्म होने और ऑक्सीजन की हानि के संयुक्त प्रभावों के परिणामस्वरूप समुद्री पारिस्थितिकी तंत्र और अर्थव्यवस्था पर पड़ने वाले प्रभावों पर चर्चा कीजिए। (15 अंक, 250 शब्द)

Global warming has led to increase in ocean levels further resulting in acidification, and oxygen loss. (WMO - 2013-2022, sea level rose by 4.5 mm/year)

## Effect of ocean acidification

\* It is the decrease in pH levels of ocean water due to increased amount of dissolved  $\text{CO}_2$  due to climate warming.

1) Acidification affects the marine organisms negatively as - 1) Thinning of shells of sea animals as - Turtles, crabs etc.

2) Change in reproductive behaviour of animals as - more female turtles bear less  
↳ also leading to threat to their survival.

3) Certain species grow in abundance affecting the balance of ecosystem.

2) Impact economy negatively -

1) As fish production may lead to decline.

2) Cost of intervention to check acidification  
Study & Research → mitigation

3) Ocean resources may decline as - minerals  
 with low pH water may dissolve.

Ocean warming - due to rise in  
global atmospheric  
temperature

1) Warming of sea disturbs

- the marine ecosystem → It promotes  
growth of certain species posing a threat

to ecosystem as warming has led to

growth in population of jellyfishes, Uca hermis

- Warming also affect reproduction behaviour  
of species

- it affect zooplankton & phytoplankton thus  
affecting ocean food cycle.

2) Economy - 1) loss of marine resources as  
fisheries & minerals due to warming

- cost of addressing the warming.
- Ocean warming → affects the weather circulation & atmosphere patterns → more vulnerable in coastal/land region → economic loss due to floods
- Also intense cyclones due to ocean warming cast a burden on economy.

oxygen loss - It refers to decrease in the BOD of water

1) Marine ecosystem - 1) creates hypoxia where species die due to lack of oxygen.

2) Strain on existing species due to less oxygen so, affects growth, cause mass migration.

2) Economy - 1) Decline of marine resources.

2) Cost for coastal communities which depend upon fisheries for their livelihood → so, food security related economic cost also.

It is important to streamline the efforts of mitigation & adaptation to achieve SDG 14 (life below water)

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



**Q.18)** The invisible nature of groundwater is a major obstacle in the path towards achieving the twin objectives of building climate resilience and meeting the Sustainable Development Goals (SDGs). Elucidate. (15 marks, 250 words)

भूजल की अदृश्य प्रकृति जलवायु लचीलेपन के निर्माण और सतत विकास लक्ष्यों (SDGs) को पूरा करने के दोहरे उद्देश्यों को प्राप्त करने की राह में एक बड़ी बाधा है। स्पष्ट कीजिए। (15 अंक, 250 शब्द)

Groundwater is stored beneath surface of earth thus making it difficult to estimate its quality, quantity & replenishment, hence making it of invisible nature.

Obstacle towards climate Resilience

1) Climate resilience demands resources are used in prudent manner so, to avoid over extraction than rate of replenishment (as India largest user of groundwater).  
invisible nature make it difficult

2) Resilience require that resources should be ample in quantity & of desired quality to meet any climate related challenge.  
being invisible it is difficult to know quality.

3) Taking any intervention to ensure resilience  
is also not easy as - ensuring quality of  
checking arsenic & fluoride levels.

4) Obstacle to achieve SDs

- 1) SDs such as - SD 6 which talks of  
clean water & sanitation and ground water  
being major sources of water are interconnected.
- 2) Sustainable use of Resource regime first  
to know/assess the status of Resource then  
chart out its rational use. (Being underground  
difficult to assess)
- 3) Also regulations to check  
unsustainable use is difficult as being  
very widespread & underground nature.
- 4) SDs of health, gender equality (SDs) 5 also  
(SD 4)  
rely on use of water resources in a judicious  
and equitable way. so, to ensure sanitation &  
no unnecessary <sup>burden on</sup> women burdened with household  
responsibilities

5) Its extraction in an unequalled manner by various entities is also difficult to check thus affecting sustainable development of cities (SDG goal).

6) Also, SDG goal to achieve a peaceful society require water resources are equitably distributed & not oversed by some invisible water makes it difficult to monitor use.

Solution requires measures

- 1) Tools to make invisible → visible  
(use of sensing technology as- SONAR, LIDAR etc)
- 2) Create awareness with respect to judicious use of water → promote reuse → benefit agriculture & use for other purpose.
- 3) Water conservation, promote sustainable agri practices as- microirrigation, No-flood irrigation.
- 4) Strengthen schemes as- Aat Bhari Yojana, AMRUT etc.

Smartification is key, measures like 'lifestyle for environment' should be focused upon to generate awareness among people

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |

sponsoring & supporting the insurgent  
activities as- Concern of china supporting such  
elements.

- 3) Terrain - the undulated topography allows  
to carry out guerrilla warfare & the hide.
- 4)  vested interest - of ' mafia', organised syndicates  
to create law, order & governance issue to  
saturate their interest as buffering.
- 5) ethnic strife - has also fuelled violent  
activities as- Manipur case
- 6) Youths brainwashed to carry out vested  
interest of certain interest.
- 7) Developmental apathy - where still certain  
regions has not benefitted from the process  
of development so, hold grudge.
- 8) Law-enforcement agency related issues -
  - 1) find it difficult to address/ take  
emergency due to difficult terrain
  - 2) High handedness as- AFSPA further alienate  
people



Q.19) Despite various efforts, a lasting solution to the insurgency in the north-eastern region of India remains elusive. Analyse the reasons behind the continuation of insurgency in the region. Also, suggest effective measures to tackle it. (15 marks, 250 words)

विभिन्न प्रयासों के बावजूद, भारत के उत्तर-पूर्वी क्षेत्र में उग्रवाद का स्थायी समाधान अस्पष्ट बना हुआ है। क्षेत्र में उग्रवाद जारी रहने के पीछे के कारणों का विश्लेषण कीजिए। साथ ही इससे निपटने के लिए प्रभावी उपाय भी सुझाएं।

(15 अंक, 250 शब्द)

Insurgency is an extremist act where people within the state target state machinery and apparatus using violent methods to usurp political authority.

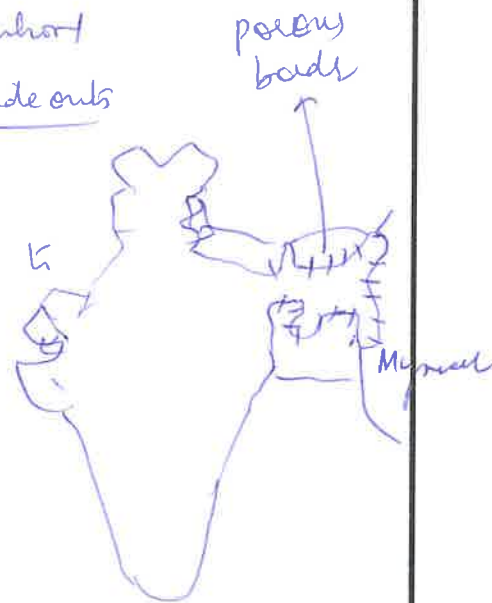
It has reduced but recent uprise has been witnessed as in Manipur. (Case reduced by 73% by 2014-2023)

## Reasons for continuation

### 1) Geographical location and porous borders

\* The countries in neighbourhood provide safe heavens to hideouts of insurgents as Myanmar

\* Unorganised spaces are used to carry out insurgent activities as - Bangladesh under political crisis.



### 2) Role of external agents

\* where other states has been seized

## Measures

### 1) Law & Order related measures

- Strengthen the state police capacity as- SRE scheme
- Renew AFSPA and very selective implementation as- Intervene committee suggestion
- Cooperation with neighbours as- operation All clear with Myanmar
- Establish special battalions who are specifically trained as- fighting of Andhra
- Rehabilitation scheme for people surrendering should be made more incentive
- Use of drones / smart firing etc

### 2) Developmental approach

- Invest in infrastructure development as- Roads, schools, hospitals eg- PM-DIVINE scheme, Eklavya school etc
- Ensure effective governance, reduce corruption as- Autonomy to regions under ADC
- Promote local culture & efforts to conserve it eg- Tanjavir gaurav diwas
- Employ best of the best officers in the region
- Implementation of scheme as- PM-JANMAN, TRIFED etc
- Collaboration with others as- Japan & Australia has shown desire to invest in North east region.
- Winning heart & mind of people is the best solution, the most sustainable & acceptable one.

## Feedback

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |



Q.20) While developmental initiatives have a significant role to play, they alone cannot root out terrorism/militancy in Jammu and Kashmir. Comment. (15 marks, 250 words)

हालांकि विकासात्मक पहलों की महत्वपूर्ण भूमिका है, लेकिन वे अकेले जम्मू-कश्मीर में आतंकवाद/उग्रवाद को जड़ से खत्म नहीं कर सकते हैं। टिप्पणी कीजिए। (15 अंक, 250 शब्द)

Terrorism is an extremist act carried out with the purpose to instil fear among people and gain political authority.

Development initiative have key role in tackling  
corruption

- 1) Address regional disparity - by investing in infrastructure such as road, healthcare facilities and education such as - Nai Manzill scheme
- 2) Provides youth economic opportunities - through skilling and employment creation as - Vineed scheme.
- 3) Address local resentment & alienation among youth - as all reap the benefit of development process.
- 4) Winning heart & mind of people - through providing for basic amenities and opportunities as - healthcare, economic opportunities as -

organising women into SHS, promoting  
entrepreneurship.

- 5) Create aware & responsible citizens - as through  
education youths are not influenced by  
radical ideology.

However, with recent rise in cases as in  
Rayachoti area, it is equally important  
to focus on law and order approach.

- 1) Create deterrence - strong law and order and  
quick response by armed personnel create  
deterrence for such acts.
- 2) State sponsored nature of act - in such cases  
robust law and order, equipped armed personnel  
is a must as- recent cases of use of  
snipers & drones by terrorists.
- 3) To prevent infiltration activities across border -  
strict vigilance on account of security agency  
is must
- 4) Intelligence gathering - is important

- to revert any such act
- 3) With changing nature & form of terrorist activities as- hybrid warfare, asymmetric warfare etc, robust security & defense network gets vital.
- 4) Proactive approach - to destroy terrorist hideouts etc. requires security agencies to act swiftly.

Situation demands an optimum combination of both the approaches. However, central focus should be on At. Shri Atal Vajpai said: Kashmiryat, Instability & Jamhooriyat.

**Feedback**

(For OFFICE use only)

| #                                                                                        | G | A | P |
|------------------------------------------------------------------------------------------|---|---|---|
| AWIS                                                                                     |   |   |   |
| CD & VA                                                                                  |   |   |   |
| S & F                                                                                    |   |   |   |
| P & R                                                                                    |   |   |   |
| Please put tick marks in the above table.<br>Here G is Good, A is Average and P is Poor. |   |   |   |
| TOTAL MARKS                                                                              |   |   |   |