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Q. No.	Total Marks	Obtained Marks
Unit-I-A	10	6.75
Unit-I-B	25	14.5
Unit-I-C	30	12.5
Unit-II-A	10	5.5
Unit-II-B	20	8
Unit-II-C	40	11
Unit-III-A	10	4.75
Unit-III-B	25	11.5
Unit-III-C	30	10.5
Total Obt. Marks in Figures	200	85
Total Obt. Marks in Words		Eighty Five

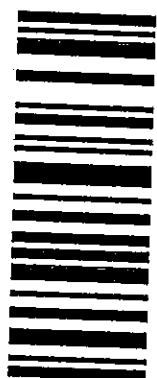
का विकल्प दिया गया है और परीक्षार्थी द्वारा एक से अधिक प्रश्न हल किये जाते हैं तो ऐसी

प्रश्नोत्तर पुस्तिका को किसी प्रकार की क्षति पहुँचाई जाती है अथवा उस पर किसी प्रकार द्वारा उसकी संपूर्ण परीक्षा निरस्त की जा सकेगी और उसके लिए अभ्यर्थी उत्तरदायी होगा।

candidate or any attempt is made to damage the answer script or any marking as on shall be cancelled by the Commission, for which candidate will be liable.

PART - I

Paper Code
P-2



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CANDIDATE PLEASE READ CAREFULLY

परीक्षार्थी कृपया ध्यान से पढ़ें

Do not write any mark of identity inside the Answer Script (including Paper for rough work) i.e. Name, Address, Roll Number, Mobile Number etc. Not to be written even in the letter writing (XYZ, ABC etc. may be written) Name of God, any religious sign, any irrelevant sentence, words, number other than the answer of question must not be written. Such act will be treated as unfair means and entire examination of the Candidate shall be cancelled and he may be debarred by the RPSC from all the future examinations, for which the candidate will be liable.

प्रश्नोत्तर पुस्तिका (रफ कार्य के पृष्ठ सहित) के अंदर कहीं पर भी पहचान चिह्न यथा अपना नाम, पता, रोल नंबर, मोबाइल नंबर इत्यादि नहीं लिखें। यहां तक कि पत्रादि लेखन में भी नहीं लिखें (XYZ, ABC, अ ब स आदि लिखा जा सकता है)। कोई धार्मिक चिह्न, देवताओं के नाम, अनर्गल बातें, प्रश्नोत्तर से असंबंधित वाक्य, शब्द एवं अंक, आदि भी न लिखें। ऐसा करने पर आयोग द्वारा इसे अनुचित साधन अपनाने का कृत्य माना जायेगा तथा अभ्यर्थी की संपूर्ण परीक्षा निरस्त की जाकर भविष्य में आयोजित की जाने वाली परीक्षाओं से विवर्जित करने की कार्यवाही की जा सकेगी और उसके लिए अभ्यर्थी उत्तरदायी होगा।

IMPORTANT INSTRUCTIONS (महत्वपूर्ण निर्देश)

- (A) It should be ensured that the Question-Answer Booklet is provided in a sealed envelope to the candidate. अभ्यर्थी यह सुनिश्चित कर लें कि अभ्यर्थी को प्रश्नोत्तर पुस्तिका सीलबंद लिफाफे में प्रदान की गई है।
- (B) If the Question-Answer Booklet is torn or not printed properly or some pages are missing (Please count the number of pages) then bring it to notice of Invigilator and change the Question-Answer booklet, otherwise the candidate will be liable for that. यदि प्रश्नोत्तर पुस्तिका कहीं से कटी-फटी या अमुद्रित है या पृष्ठ कम हैं (कृपया पृष्ठ गिन लें) तो अभिजागर के ध्यान में ला दें तथा उसे बदलवा लें, अन्यथा उसका दायित्व अभ्यर्थी का होगा।
- (C) Please fill up all desired details properly on Cover Sheet of Question-Answer Booklet with Blue Ball Point Pen before answering. The Commission may also deduct 5 marks from the marks obtained if Roll Number is not filled correctly on the Cover Sheet. प्रश्नोत्तर पुस्तिका में प्रश्न हल करने से पूर्व कवर पृष्ठ पर सभी वांछित विवरण नीले बॉल प्वाइंट पेन से सावधानीपूर्वक भरें। कवर पृष्ठ पर रोल नम्बर का त्रुटिपूर्ण अंकन करने पर आयोग द्वारा प्राप्तांकों में से 5 अंक काटे भी जा सकते हैं।
- (D) This Cover Sheet consists of two parts, in which some information is pre-printed, remaining details have to be filled by the candidate. Please ensure that this Cover Sheet is not torn or damaged. कवर पृष्ठ दो भागों में बंटा है, जिसमें कतिपय सूचनाएँ पूर्वमुद्रित हैं, शेष की पूर्ति अभ्यर्थी को करनी है। ध्यान रखें कि कवर पृष्ठ कहीं से कटे-फटे नहीं अथवा किसी भी प्रकार से क्षतिग्रस्त नहीं हो।
- (E) The question paper is divided into different units and parts. The number of questions to be attempted and their marks are indicated in each unit and parts. प्रश्न-पत्र विभिन्न यूनिट एवं भागों में विभाजित है। प्रत्येक यूनिट एवं भाग में हल किये जाने वाले प्रश्नों की संख्या और उनके अंक उस यूनिट एवं भाग में अंकित किये गए हैं।
- (F) If there is any sort of ambiguity/mistake either of printing or factual nature then out of Hindi and English version of the question, the English version will be treated as standard. यदि किसी प्रश्न में किसी प्रकार की कोई मुद्रण या तथ्यात्मक प्रकार की त्रुटि हो, तो प्रश्न के हिन्दी या अंग्रेजी रूपान्तरों में से अंग्रेजी रूपान्तर मान्य होगा।
- (G) Attempt answers either in Hindi or English, not in both. For Language Papers, answer in concerned language and script, unless directed otherwise to write in Hindi or English specifically. उत्तर अंग्रेजी या हिन्दी भाषा में से किसी एक में दीजिये, दोनों में नहीं। भाषा विषयक प्रश्नों के उत्तर उनकी संबद्ध भाषा व लिपि में ही दिए जाएँ, जब तक कि प्रश्न विशेष के लिए अलग से हिन्दी या अंग्रेजी में उत्तर देने के लिए न लिखा गया हो।
- (H) Candidates are directed to write answers only in the prescribed space of booklet. They should not write answer outside the border line. Answer written outside the border line will not be checked. अभ्यर्थियों को निर्देशित किया जाता है कि किसी भी प्रश्न का उत्तर प्रश्नोत्तर पुस्तिका में निर्धारित स्थान पर ही लिखें। बॉर्डर लाइन से बाहर प्रत्युत्तर नहीं लिखें। बॉर्डर लाइन के बाहर लिखे गये उत्तर को जाँचा नहीं जायेगा।
- (I) The candidates should not write the answers beyond the prescribed limit of words, failing this, marks may be deducted. अभ्यर्थियों को उत्तर निर्धारित शब्द सीमा से अधिक नहीं लिखना चाहिए, इसका उल्लंघन करने पर अंक काटे जा सकते हैं।
- (J) If there is a choice to attempt one question out of many and the candidate attempts more than one question then only first answer will be assessed. यदि कई प्रश्नों में से कोई एक हल करने का विकल्प दिया गया है और परीक्षार्थी द्वारा एक से अधिक प्रश्न हल किये जाते हैं तो ऐसी स्थिति में प्रथम उत्तर ही जाँचा जायेगा।

विशेष नोट:

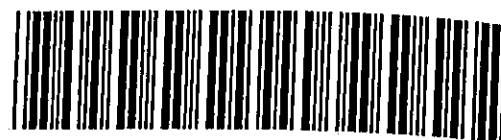
अभ्यर्थी द्वारा यदि कोई गलत सूचना दी जाती है या प्रश्नोत्तर पुस्तिका को किसी प्रकार की क्षति पहुँचाई जाती है अथवा उस पर किसी प्रकार का पहचान चिह्न अंकित किया जाता है, तो आयोग द्वारा उसकी संपूर्ण परीक्षा निरस्त की जा सकेगी और उसके लिए अभ्यर्थी उत्तरदायी होगा।

Special Note:

If there is any wrong information filled by the candidate or any attempt is made to damage the answer script or any marking as identification is done, then his entire examination shall be cancelled by the Commission, for which candidate will be liable.

Paper-II

4



SPACE FOR ROUGH WORK

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PAPER - II

GENERAL STUDIES & GENERAL KNOWLEDGE

(Total 200 Marks)

(Total 39 Question)

Unit - I
(यूनिट - I)(65 Marks)
(65 अंक)Part - A
भाग - अMarks : 10
अंक : 10

Note: Attempt all questions. Answer the following questions in 15 words each. Each question carries 2 marks.

नोट : सभी प्रश्नों के उत्तर दें। निम्न प्रश्नों का उत्तर 15-15 शब्दों में दें। प्रत्येक प्रश्न के 2 अंक निर्धारित हैं।

1. Explain the role of the concept of 'sthit pragya' in the discharge of administrative responsibility.

प्रशासनिक कर्तव्य के निर्वहन में 'स्थित प्रज्ञ' की संकल्पना की भूमिका को स्पष्ट कीजिए।

Sthit - Stable Pragya - Intelligence.

An Administrator with 'sthit pragya' performs duty free from - anger, love, hate, vengeance.
Perform duty according to public interest.
decision base of - facts, logic.

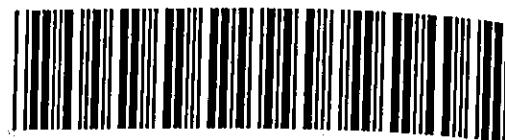
1.5(One½)
(Q.Unit-I-A-1)

2. What teachings of Buddha are most relevant today and why?

बुद्ध की कौनसी शिक्षा आज सर्वाधिक प्रासंगिक है और क्यों?

Buddha told concept of "Middle Path" which prohibits extremism.
The theory of Panchsheel prohibit - Speaking false, non-stealing,
no to narcotic & alcohol, Violence and
stay away from sexual misconduct.
Astangik marg -> provide pleasure & happiness

2(Two)
(Q.Unit-I-A-2)



3. What do you understand by ethical dilemma?
नैतिक द्वन्द्व से आप क्या समझते हैं?

It is the situation when one become confuse to select an alternative from two or more alternatives. Example :-
① Conflict of Interest ② Public Interest versus Private Interest.

1(One)
(Q. Unit-I-A-3)

4. Explain the relevance of ethical idea of 'Rina' in the administrative life.
प्रशासनिक जीवन में 'ऋण' के नैतिक आदर्श की प्रासंगिकता को स्पष्ट कीजिए।

Rina - Vedic concept → one is in debt to Rishi, Dev and Pitra for providing - knowledge, life and birth. ADMINISTRATOR :- is in debt to society and public. To remove debt :- follow duties of public welfare, according to constitution and law.

0.75(Zero³/₄)
(Q. Unit-I-A-4)

5. What way 'detachment theory' of Bhagvad Geeta is significant in the life of an administrator?

भगवद्गीता का 'अनासक्ति सिद्धान्त' किस रूप में एक प्रशासक के जीवन में सार्थक है?

In Geeta it was explained by Nishkama Karma and "Pravarti & Nivarti". An administrator should be detached to - Promotion, posting, privilege, perks etc and private interest. Should follow - Duty according to constitution, law without fear.

1.5(One¹/₂)
(Q. Unit-I-A-5)

**Marks : 25**

अंक : 25

नोट : सभी प्रश्नों के उत्तर दें। निम्न प्रश्नों का उत्तर 50 - 50 शब्दों में दें। प्रत्येक प्रश्न के 5 अंक निर्धारित हैं।

‘मनुष्य की नैतिक उन्नति समाज की सर्वांगीण उन्नति पर निर्भर करती है।’ विवेचना कीजिए।

Society : { Second Socialization }, (3-8)^{years} - mixed impact of family & society, after 8 years → most impact of society. Positive ① ~~Cooperation~~

Negative ① Communalism ② Nepotism ③ Discrimination

So, advancement of society makes one $\leq$ ^{secular} ~~equality~~ _{favor democracy}

“परिवार मनुष्य के नैतिक विकास की सबसे महत्त्वपूर्ण संस्था है।” इस कथन की समीक्षा कीजिए।

first teacher , 0-3 years : impact of family.

most of psychology developed during this period.

13-10 years - Mixed effect of family and Society

* Impact of family remains throughout life of person

Positive	Negative
<u>Mother</u> : caring, love, sacrifice respect, truth	Substitution, nepotism,
<u>Father</u> : duty, patience hardwork sacrifice	Discrimination, Casteism
<u>Siblings</u> : sharing, Helping	<u>Social evils</u> :- dowry system

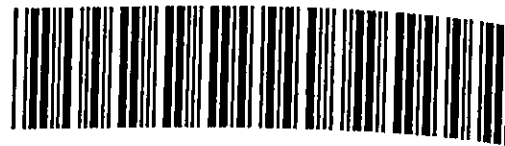
Elders - Spirituality, respect
nobility

3(Three)

(Q.Unit-I-B-6)

3.5(Three½)

(Q.Unit-I-B-7)



8. Explain the Kant's ultimate good on the basis of relative and categorical imperative.
कांट किस प्रकार सापेक्ष एवं निरपेक्ष आदेश के आधार पर अंतिम शुभ की व्याख्या करता है।

* Both the means and end should be pure.

* The judgement of will must be based on Intention
Not on the result. * Duty must be followed
in any circumstance - Duty for duties sake.

* Duties must be taken as Imperative -
means as order because man is both
Rational and emotional - one should act
rationally. * Any Good should not be
the means to achieve another good. * He
game Postulates ① Eternal life ② Freedom of Will
③ Existence of Good

9. What are generally considered to be the minimum basic needs of an individual to lead a healthy and productive life? What is the administrators responsibility in ensuring these minimums?

आमतौर पर एक स्वस्थ और उत्पादक जीवन जीने के लिए व्यक्ति की न्यूनतम बुनियादी जरूरतें क्या मानी गयी हैं? इन न्यूनतम को सुनिश्चित करने में एक प्रशासक की क्या जिम्मेदारी है?

• Physically :- Cloth, Shelter, Food, Drinking water
• Intangible : ① Health ← Affordable
Accessibility
② Education - Quality, Inclusive

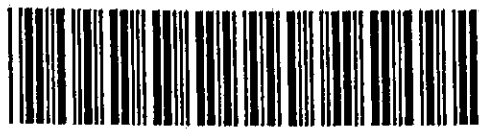
• Justice : Social, Economical and Political

• Equality : Opportunity and Status.

⇒ Administrator Responsibility :- ① To perform
duties according to Constitution, Law, Code
of Conduct, Determining Policies ← Inclusive
Integrity, Honesty, selflessness | Sustained Integrated
openness, objectivity | Balanced

1.5 (One½)
(Q. Unit-I-B-8)

3.5 (Three½)
(Q. Unit-I-B-9)



By this principles administrator work for principles of constitution $\leftarrow$ Equality, Justice, Liberty etc

10. What are the core ethical values required for excellence in civil service?

लोक सेवा की उत्कृष्टता के लिए आवश्यक प्रमुख नैतिक मूल्य कौन से हैं?

According to Geeta - Nishkama Karma, Swadharma, Stitha Pragnya, Raj Rishi, Detachment, Lok Sangraha

Kant: Duties of Duties sake, Categorical Imperative

Gandhiji - Truth, Nonviolence, Ahimsa, Asteya

Buddha:- Middle Path

<u>Cognitive</u> :-	<u>Emotional</u>	<u>Behavioural</u>
• Decision Making	• Sympathy	Integrity, Honesty
• Scientific Thinking	• Empathy	Selflessness, openness
• Critical Critical Thinking	• Compassion	Objectivity, Leadership
• Rationality	• Emotional Intelligence	Accountability
		Spirit of Service

3(Three)
(Q. Unit-I-B-10)

Part - C

भाग - स

Marks : 30

अंक : 30

Note: Attempt all questions. Answer the following questions in 100 words each. Each question carries 10 marks.

नोट : सभी प्रश्नों के उत्तर दें। निम्न प्रश्नों का उत्तर 100-100 शब्दों में दें। प्रत्येक प्रश्न के 10 अंक निर्धारित हैं।

11. "Necessarily related, means cannot be separated from ends. Therefore, both must be auspicious for real and lasting success." Explain the above comment in the context of Gandhian ethics.

"अनिवार्यतः सम्बन्धित होने के कारण साधनों को साध्य से पृथक् नहीं किया जा सकता, अतः वास्तविक और स्थाई सफलता के लिए दोनों का शुभ होना आवश्यक है।" गाँधी नीतिशास्त्र के सन्दर्भ में उक्त टिप्पणी को स्पष्ट करें।

Gandhiji always focus on "Purity of both"



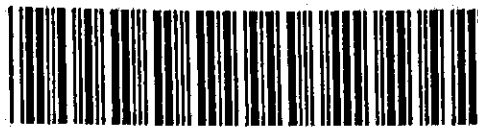
means and End. Means to attain an pure end the means should be pure.
 * By Impure means end also become impure.

* TRUTH :- It is ultimate end which means JUSTICE. To attain this as End the means must be NON-VIOLENCE.

He supported innovative ideas like SATYAGRAH means request for Justice but by way of non violence. Here truth mean justice of all types and gave concept of ANTYODAYA → development of All in all respects - Spiritual - Physical - Mental.

→ During freedom movement by these principles he brings remarkable change by - Satyagrah, Non Cooperation Movement, Civil Disobedience.

* Freedom must be pure if means is pure. Violence is temporary success, to make permanent success - Hriday Pravarthan is necessary. CONCLUSION These principles are still relevant in present era in all situation and circumstances. So both should be pure, specially - Means.



12. Explain the factors essential in "Ethical decision" making. In case of ethical decision being against to administrative decision, how will you harmonise them? Explain with examples.
 "नैतिक निर्णय" लेने में महत्वपूर्ण कारकों को समझाइए। यदि नैतिक निर्णय प्रशासनिक निर्णय के विरुद्ध हो, तो आप दोनों में किस प्रकार समन्वय करेंगे? सोदाहरण समझाइए।

The conflict between ethical decision making is ETHICAL DILEMMA which is hard to resolve BUT some factors make it solve.

FACTORS - ① Integrity ② Openness ③ Objectivity ④ Accountability SKILLS : Social Intelligence, Emotional Intelligence

GAEETA - Nishkama Karma, Swadharma,

Lok Samgrah, Shilp Pragya etc are very helpful

KANT : 'Duties for duties sake'

GRANDHIJI → Hearing Inner Voice - Antah karon ki awaz

⇒ CASE :- ① An old woman does not ^{has} ~~have~~ documents but need urgent social service :-

AGAINST :- Helping or giving service without document becomes illegal and against administrative ethics.

SOLUTIONS :- Immediate : Giving economic help with support of colleagues or from Sabha Members.

Personal and official : Completion of document as soon as possible

* LONG TERM :- ① Institutional - auto updation of documents ② organising camps for documents completion as

"Ethics is all for other" - work is to include not exclude the deprived

1.5(One½)

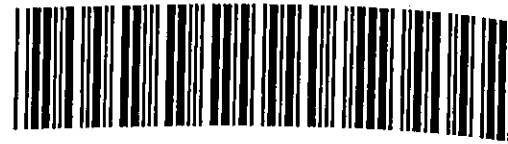
(Q. Unit-I-C-12)

2.5(Two½)

(Q. Unit-I-C-12)

2(Two)

(Q. Unit-I-C-12)



13. "Each other's success teaches a lesson for better governance." Analyze this statement with examples.

"एक दूसरे की सफलता बेहतर प्रशासन के लिए सीख देती है।" इस कथन का विश्लेषण उदाहरणों द्वारा कीजिए।

"A man is what he see in Society"

Similarly an Administrator learns from experience of others - Experience is the best teacher whether self or others.

EXAMPLES:- ① Failure of SLV mission -

Leader like Satish Dhawan took responsibility So

Leader and Administrator should be ACCOUNTABLE & RELIABLE.

② INCOME TAX DEPARTMENT :- Use of ICT

and E-Governance leads to eradication

of corruption - facile assessment.

③ THE BETTOR INDIA - Provides many example

of PEOPLE PARTNERSHIP - Real democracy.

④ FREEDOM MOVEMENT - The success of

Movements makes for inclusion of that Principles in

⑤ AHMEDABAD Model - Easing government work CONSTITUTION

* IN CONCLUSION there are good relation between govt & public

lot of examples from Ancient - Mowya, Gupta Era

Medieval - Krishnadevaya Modern - Gandhiji, Tilaka

"We can also learn from failures"

- A.P.J. Abdul Kalam



Note: Attempt all questions. Answer the following questions in 15 words each. Each question carries 2 marks.

नोट : सभी प्रश्नों के उत्तर दें। निम्न प्रश्नों का उत्तर 15-15 शब्दों में दें। प्रत्येक प्रश्न के 2 अंक निर्धारित हैं।

1. Differentiate between nuclear fission and fusion.

नाभिकीय विखण्डन एवं संलयन को विभेदित कीजिए।

<u>Nuclear Fission</u>	<u>Nuclear Fusion</u>
1. Separation of unstable nucleus into smaller nucleus.	1. Two small nucleus merge to form big nucleus.
${}_{92}^{235}\text{U} \Rightarrow {}_{56}^{141}\text{Ba} + {}_{36}^{92}\text{Kr} + \text{Energy}$	${}^2_1\text{H} + {}^2_1\text{H} = {}^4_2\text{He}$
2. Less energy	2. huge energy
3. Controlled easily	3. Can hard to control.
<u>Energy Generation</u>	<u>Atom Bomb</u>

2. Explain the role of calcium carbide in the artificial ripening of fruits.

फलों को कृत्रिम रूप से पकाने में कैल्शियम कार्बाइड की भूमिका स्पष्ट कीजिए।

Calcium carbide increasing the respiration process leads to fast bacterial growth presence of oxygen, convert starch into glucose.
can be used as plant growth regulator
uses:- Papaya Ripening.

1.5(One½)

(Q.Unit-II-A-1)

0 (Zero)

(Q.Unit-II-A-2)



3. What is an OTT platform?
ओ.टी.टी. प्लेटफॉर्म क्या है?

Stands for Over the Top platform
serves as Intermediary for hosting
and Broadcasting information - audio, video,
Music, etc.

Example: Netflix, Hotstar
Amazon etc.

0.5(Zero½)

(Q. Unit-II-A-3)

0.5(Zero½)

(Q. Unit-II-A-3)

4. What is the basic concept of operation of RFID? Give two application of this technology.
आर.एफ.आई.डी. प्रचालन का मूल सिद्धान्त क्या है? इस तकनीक के दो उपयोग दीजिए।

It operates on Radio Frequency having
two components ① RFID Emitter - Emit
radio waves ② RFID Tag - Antenna & Chip
* Tag reflect the embedded information in
digital form. Application ① FAST TAG
② TRACKER in Supply Chain may

1(One)

(Q. Unit-II-A-4)

5. What is the difference between Polar Satellite launch vehicle and Geosynchronous Satellite launch vehicle?

ध्रुवीय उपग्रह प्रक्षेपण यान और भूस्थिर उपग्रह प्रक्षेपण यान में क्या अंतर है?

PSLV	GSLV
1. Polar satellite launch vehicle	1. Geosynchronous satellite launch vehicle
2. Mainly used for <u>Lower earth (LEO) orbit</u>	2. <u>Upper/Geosynchronous earth orbit (GEO)</u>
3. <u>4 stage</u> = <u>2 solid</u> <u>2 liquid</u>	3. <u>3 stage</u> = <u>Solid</u> <u>Liquid</u> <u>Cryogenic</u>
4. <u>Imaging Satellite</u> <u>Cartosat</u> , <u>Resource Sat</u>	4. <u>Communication & Broadcasting Satellite</u>

1(One)

(Q. Unit-II-A-5)

1(One)

(Q. Unit-II-A-5)

* Power house of ISRO



Note: Attempt **all** questions. Answer the following questions in **50** words each. Each question carries **5** marks.

नोट : सभी प्रश्नों के उत्तर दें। निम्न प्रश्नों का उत्तर **50 - 50** शब्दों में दें। प्रत्येक प्रश्न के **5** अंक निर्धारित हैं।

6. Write any five benefits of the medicinal plant - Guduchi/Giloy.
औषधीय पौधे - गुडूची/गिलोय, के कोई पाँच लाभ लिखिए।

1. Increases the Immunity power of body
 2. Increases Virus and Bacteria tolerance capacity
 3. Improves digestive system
 4. Protects from Cold and SARS
 5. Speedy recovery from COVID-19
 6. Blood-purification and detoxification
- Balance the immunity inducing hormones in body
- Reduces obesity, prevent diabetes

Included in
Fit India
Yojana
Ghar - Ghar
Ausadhi Yojana

7. What is Cryptocurrency? What are its advantages and disadvantages?
क्रिप्टोकॉरेंसी क्या है? इसके फायदे और नुकसान क्या हैं?

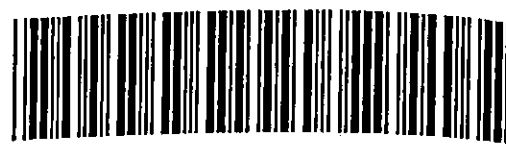
It is Virtual currency and digital currency
which operates on Block Chain Technology
Introduced by Satoshi Nakamoto of Japan
Ex: Bitcoin, Tetra etc.
Advantages :- ① Secure transaction
② Transparency

1(One)
(Q.Unit-II-B-6)

1(One)
(Q.Unit-II-B-6)

1(One)
(Q.Unit-II-B-6)

2(Two)
(Q.Unit-II-B-7)



③ once entered can't be altered

④ Information to whole network

⑤ Fast ⑥ Remove Intermediaries

Imbalance		<u>Disadvantages</u>		very much volatile
* MICROECONOMIC Indicators		Cyber security	Hard to Regulate	
Inflation	Foreign Reserve			

8. What are the differences between the previous generations of mobile networks and 5G Network?

पिछली पीढ़ियों के मोबाइल नेटवर्क और 5G नेटवर्क में क्या अंतर है?

<u>Previous</u>	<u>5th Generation</u>
1 G - Analog	1. Freq - 200 kHz above
2 G - Digital - ^{Very slow} GPRS speed EDGE Tech	2. 3 different spectrum
3 G - Packet Switching for data Circuit Switching for voice	3. No traffic congestion
4 G - Voice over IP - Packet switching for both - voice & data - OFDMA	4. High upload and download speed. <u>10 Gbps</u>
LTE - Long Term Evolution	5. Internet of Things (IoT) Big Data, Artificial Intelligence <u>will be supported</u>

9. Write the objective of Missiles and Strategic System (MSS). Name the laboratories which comprises MSS clustre.

मिसाइल और सामरिक प्रणाली (एम.एस.एस.) का उद्देश्य लिखिए। एम.एस.एस. क्लस्टर में शामिल प्रयोगशालाओं के नाम लिखिए।

OBJECTIVES :- 1) To provide deterrence

capacity 2) Self-Reliable in space

3) Research for public welfare and peace life Application

1.5(One½)

(Q.Unit-II-B-7)

1(One)

(Q.Unit-II-B-8)

0.5(Zero½)

(Q.Unit-II-B-8)

0 (Zero)

(Q.Unit-II-B-9)



1. Physical Research Laboratory - Ahmedabad
2. Liquid propulsion system - Trivandrum
3. W N R Rao Satellite Centre - Bangalore
4. Vikram Sarabhai Space Centre (VSSC) - Trivandrum
5. Satish Dhawan Research Centre - SHAR - Sriharikota
6. Missile - Master Control Facility - Hassan
(MCF) - Hyderabad

0 (Zero)

(Q. Unit-II-B-9)

Part - C

Marks : 40

भाग - स

अंक : 40

Note: Attempt all questions. Answer the following questions in 100 words each. Each question carries 10 marks.

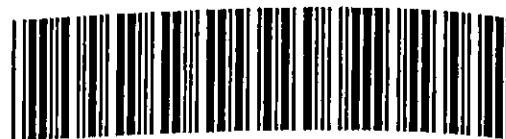
नोट : सभी प्रश्नों के उत्तर दें। निम्न प्रश्नों का उत्तर 100 - 100 शब्दों में दें। प्रत्येक प्रश्न के 10 अंक निर्धारित हैं।

10. (a) Which property of carbon is responsible for formation of large number of compounds?
 (b) Write domestic and industrial applications of carbon compounds.
 (c) Give an example of each -
 (i) Artificial sweeteners
 (ii) Food preservatives
 (iii) Ores of zinc
- (a) कार्बन का कौन सा गुण बड़ी संख्या में यौगिकों के निर्माण के लिए उत्तरदायी है?
 (b) कार्बन यौगिकों के घरेलू और औद्योगिक अनुप्रयोग लिखिए।
 (c) प्रत्येक के उदाहरण दीजिए -
 (i) कृत्रिम मधुरक
 (ii) खाद्य संरक्षक
 (iii) जिंक के अयस्क

(a) Atomic Number - Carbon = 6, therefore
Valency is 4 This property of
 valency is responsible!
 Ex: Diamond - Tetrahedral structure
 Graphite - Hexagonal structure

1(One)

(Q. Unit-II-C-10)



- (B) Diamond - Jewellery, Hard metal cutting
Graphite - Moderator - Nuclear, Pencil,
Carbon Nano Tube - Fuel utilization, ^{flexible} ~~Strong~~
Fullerene - Molecular bearing, Bucky Ball
Graphene - Sheet like - LCD, CNT
Coal - Energy, Cement industry
Charcoal - Metallurgy, Road construction

1.5(One½)
 (Q. Unit-II-C-10)

(C)

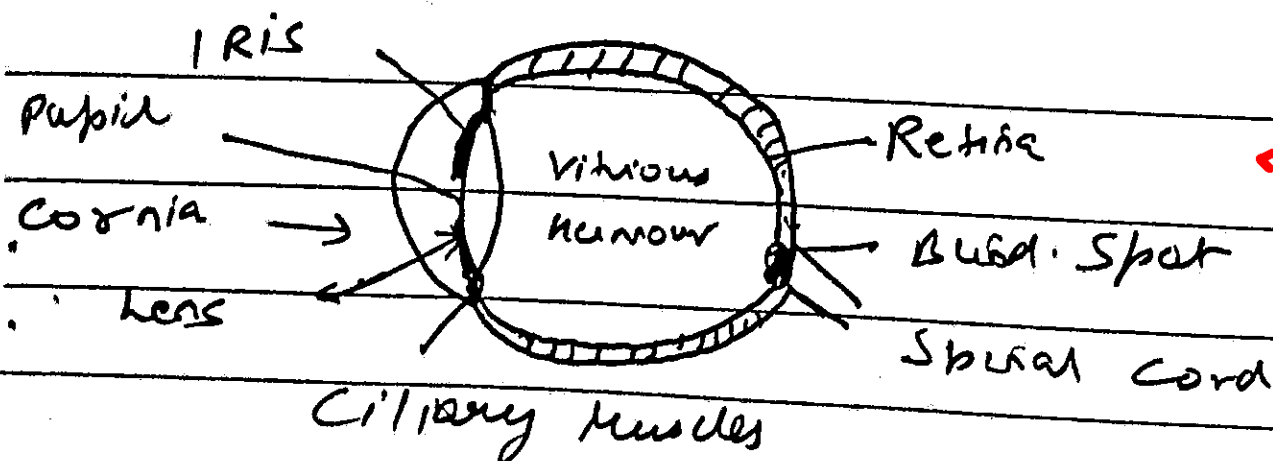
- (i) Sweeteners - Saccharine, Aspartame
 Alitame, Advantame

- (ii) Food Preservatives :- ^{natural} - Oil, Sugar
 Sodium Benzoate, Nitrate

- (iii) Zinc ore :- Zinc Blend

11. Describe the functioning of the human eye and explain any one of the refractive defects of vision and its corrective measure.

मानव आँख की कार्यप्रणाली का वर्णन करें और दृष्टि के किसी एक अपवर्तक दोष और उसके सुधारार्थ उपाय की व्याख्या करें।



1(One)
 (Q. Unit-II-C-11)



Iris - Contains Radial and Circular fibres

Contract & Expand according to light

Cornea - outer part, responsible for entering light

Pupil → Act as aperture, light enters

Retina → Image forms on it

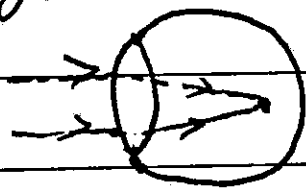
Lens :- CONVEX lens for refraction of light.

Adjustment of focal length - Far - Lens expands
Near - Lens contracts

Refractive defects - Myopia, Hypermetropia

* MYOPIA → Short sightedness

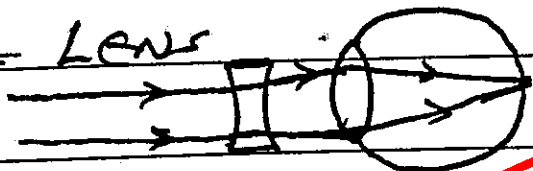
Image form before retina



Reason ① Increase in length of eye ball

② Reducing capacity of ciliary muscles.

Correction :- CONCAVE LENS



12. Explain the concept of real time-PCR. What is 'Ct value' in RT-PCR Test for Covid-19?
रीयल टाइम-पीसीआर की अवधारणा की व्याख्या करें। कोविड-19 के लिए आरटी-पीसीआर टेस्ट में 'सीटी वैल्यू' क्या है?

It stands for real time - Polymerase Chain

Reaction which is an Antigen test

for detecting of COVID-19.

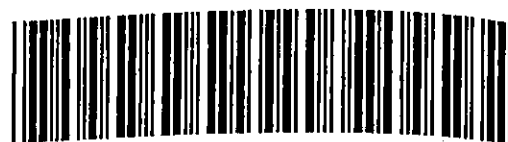
0.5(Zero½)
(Q.Unit-II-C-11)

1(One)
(Q.Unit-II-C-11)

1(One)
(Q.Unit-II-C-11)

0.5(Zero½)
(Q.Unit-II-C-11)

0.5(Zero½)
(Q.Unit-II-C-12)



Concept :- When Corona Virus enters the body immune system (Lymph organs) ^{Thymus} ~~Bone marrow~~ form ~~antigen~~ Antibodies in response to antigens (virus). B-cell & T-cell help in it. (The presence of Antibodies reflect the presence of corona virus)
Other Test → ELISA
 ↳ Radiology = CT Scan

X

Ct value :- It reflects the intensity of antigens (virus) to body and condition of body response to the disease. The amount of antibodies formed during immunization

13. Mention the contribution of the following Indian Scientists -

- | | |
|---------------------------|------------------------------------|
| (i) Homi Jehangir Bhabha | (ii) Sir Mokshagundam Visvesvaraya |
| (iii) Satyendra Nath Bose | (iv) Meghnad Saha |
| (v) Har Gobind Khorana | |
- निम्नलिखित भारतीय वैज्ञानिकों के योगदान का उल्लेख करें -
- | | |
|--------------------------|----------------------------------|
| (i) होमी जहाँगीर भाभा | (ii) सर मोक्षगुंडम विश्वेश्वरैया |
| (iii) सत्येन्द्र नाथ बोस | (iv) मेघनाद साहा |
| (v) हर गोबिंद खुराना | |

① Homi Jehangir Bhabha :- Established
Tata Institute of Fundamental Research
Father of Atomic Program, established

1(One)

(Q. Unit-II-C-13)



Department of Space, 1st Chairman
of Atomic Energy Commission.

BARC - Bombay - Bhabha Atomic Research Institute

2) Sir M. Visvesvaraya - Engineers Day celebrated.
Dam research - Barkha Narya Birth-16 Sept
Reservoir research.

3) Satyendra Nath Bose - Bose-Einstein Condensates
(BEC), research at atomic level - Boson
particle, nuclear research

4) Meghnad Saha - Contribution in Space Technology
before Independence, in collaboration with
Russia, USA.

5) Hare Chandra Kaurava - Botany Research
effect of music on plants.
Photosynthetic process, photoperiod.

0.5(Zero½)

(Q.Unit-II-C-13)

0.5(Zero½)

(Q.Unit-II-C-13)

1.5(One½)

(Q.Unit-II-C-13)

0.5(Zero½)

(Q.Unit-II-C-13)

0 (Zero)

(Q.Unit-II-C-13)

Unit - III
(यूनिट - III)

(65 Marks)
(65 अंक)

Part - A
भाग - अ

Marks : 10
अंक : 10

Note: Attempt all questions. Answer the following questions in 15 words each. Each question carries 2 marks.

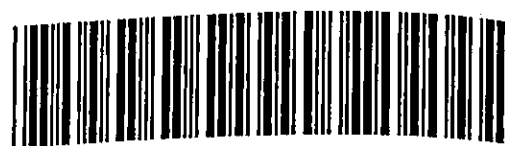
नोट : सभी प्रश्नों के उत्तर दें। निम्न प्रश्नों का उत्तर 15-15 शब्दों में दें। प्रत्येक प्रश्न के 2 अंक निर्धारित हैं।

1. Write about time range of Mesozoic era.
मेसोजोइक युग की समय सीमा लिखिए।

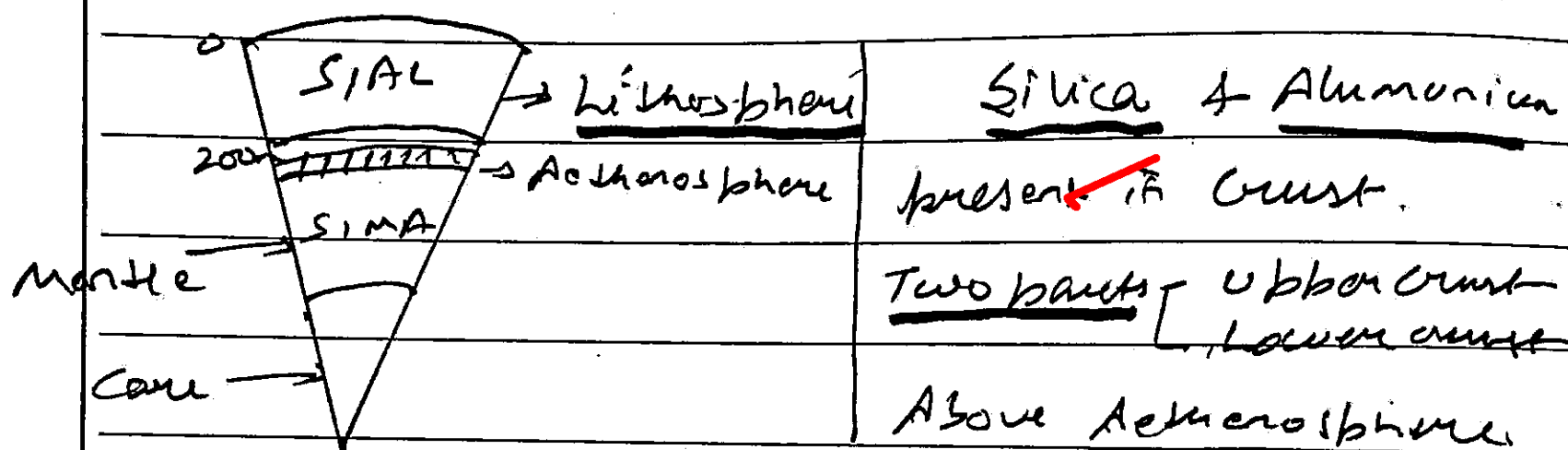
Mesozoic	→ Cretaceous	65 - 144 million years
	→ Jurassic	144 - 186 million years
	→ Triassic	186 - 245 million years

2(Two)

(Q.Unit-III-A-1)



2. Write about the structure of Sial.
सियाल की संरचना के बारे में लिखिए।



0.5(Zero½)
(Q. Unit-III-A-2)

3. How Shivalik Himalayas was formed?
शिवालिक हिमालय का निर्माण कैसे हुआ?



Formed by Geosynclinal Theory during
Tertiary area. Therms Sea was
replaced, Young fold mountains
Convergence of Eurasian and Indo-Australian
plate

0 (Zero)
(Q. Unit-III-A-3)

4. Write the names of Mountain Ranges/Hills of Western Ghats.
पश्चिमी घाट की पर्वत श्रेणियों/पहाड़ियों के नाम लिखिए।

Northern Sahyadri → Kalsubai, Udhavani,
Mahabaleshwar

Middle Sahyadri → Anaimudi,
Bababudangiri

1(One)
(Q. Unit-III-A-4)



Southern Shyamli → Palay Hills, Candamom Hills
Agastyanalai

5. Write the zinc producing areas of Rajasthan.
राजस्थान के जस्ता उत्पादक क्षेत्रों का उल्लेख कीजिए।

Mainly in Anavali Belt - Dharwar Rock

1. Udaipur - Jawar - Dehara

2. Rajsamand - Rajpura - Pariba

3. Bhilwara - Rompura - Agucha

Anda Kishanidas Pura - Alwar / Chauth ka Barwara
- Sawai madhopur

Part - B
भाग - ब

Marks : 25
अंक : 25

Note: Attempt all questions. Answer the following questions in 50 words each. Each question carries 5 marks.

नोट : सभी प्रश्नों के उत्तर दें। निम्न प्रश्नों का उत्तर 50-50 शब्दों में दें। प्रत्येक प्रश्न के 5 अंक निर्धारित हैं।

6. Describe the Circum - Pacific belt of Volcanoes.
ज्वालामुखी की परिप्रशांत मेखला का वर्णन कीजिए।

Almost 2/3 Volcanoes

found here, Active

Large Explosion

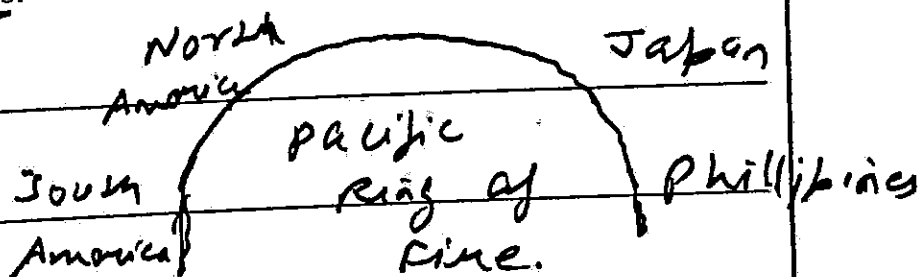
House shore shape

→ North America - Hood, Reincar, Shaska

→ South America - Accancapus, Cotopaxi, Chimbarazo

→ Japan - Ruziyama Phillipron

Huge intensity of gas, Earthquake of high Intensity



Converging Plate Boundaries

1.25(One 1/4)

(Q.Unit-III-A-5)

1(One)

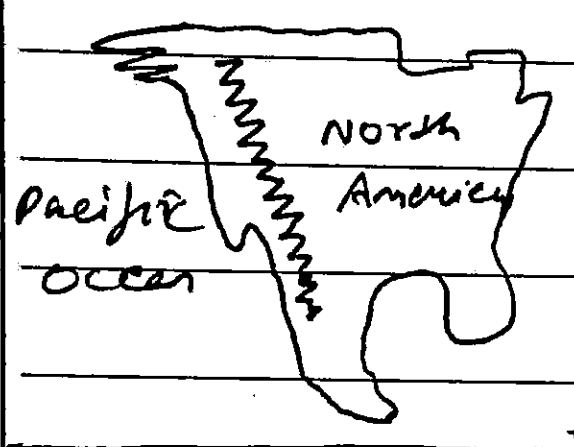
(Q.Unit-III-B-6)



Composite volcano - Mount Rainier

Crater, calderas - Japan found in this region

7. Discuss in brief the geographical features of Rocky Mountain range.
 रॉकी पर्वत श्रेणी की भौगोलिक विशेषताओं का संक्षिप्त वर्णन कीजिए।



1) Second largest Range (After Andes)

2) USA, Canada, Mexico

3) Rivers → Colorado
 Columbia
 Rio Grande

4. Convergence of Pacific plate & North America plate

5. Plateau → Colorado
 Columbia
 Great Basin

6. Peak - Mt. Elbert (Highest)

7. Resources - Iron, Cobalt, Metallurgical ore

8. Discuss the geographical characteristics of Tropical evergreen forest of India.
 भारत के उष्ण कटिबंधीय सदाबहार वनों की भौगोलिक विशेषताओं का वर्णन कीजिए।

Found at Western Ghats N.E
and Andaman
Nicobar

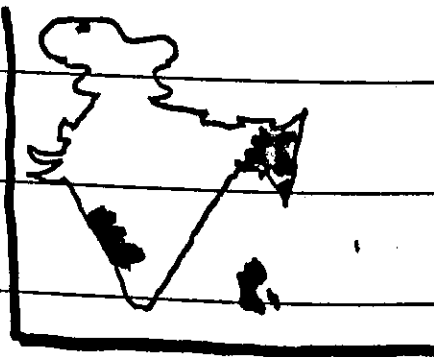
Rainfall : 200 to 400 cm

Temperature = $> 18^{\circ}\text{C}$

Vegetation → Rosewood, mahogany.

White cedar

Commercially - less viable (Hard wood)



2.5 (Two 1/2)
 (Q. Unit-III-B-7)



Huge Height of plants to prolonged competition
Nilgiri - High Biodiversity, Biosphere Reserve.

Tribe - Toda, Tribe in Andaman ~~also~~

Hills → Garo Khasi, Jaintia, North East
Commercial Agriculture - Coffee, Tea, Cashew etc.

2(Two)

(Q. Unit-III-B-8)

9. Discuss the physical features of Hadoti plateau of Rajasthan.

राजस्थान के हाड़ौती पठार की भौतिक विशेषताओं की विवेचना कीजिए।

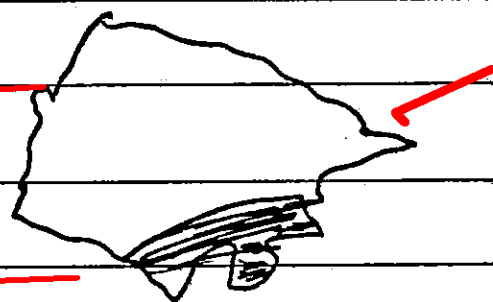
Area - 7% Population - 10% Lang - Hadoti

Formation :- Basalt lava, Black soil

2 Parts → Vindhya Scarp land - Kota, Bundi, Baran, Jhalawan
 Malva (Daclan) - Jhalawan

Sub division → Bag Ganghar ~~Pratapgarh, Chittur~~
 → ~~Shahdol Upland~~
 → Crescent Hills

Savanna climate, Mukundra Hills



2.5(Two½)

(Q. Unit-III-B-9)

10. Discuss the distribution of major metallic minerals of Rajasthan in brief.

राजस्थान में प्रमुख धात्विक खनिजों के वितरण की संक्षेप में विवेचना कीजिए।

metallic → ferrous - Iron, Chromium, Manganese, Nickel

→ non ferrous → Zinc, Lead, Silver, Gold

Platinum, Diamond, Aluminium
 Copper.

① Iron :- ① Jaipur Morija

② Rausa → Banda

Raisela, Neenla

③ Singhana, ④ Narmada Kibari, Thar Bunder

② MANGANESE → Bhilwara

③ Copper → Khetri (Jhunjhunu, Khandwa) (Alwar)
 Neenka Thana (Sikar)

Tungsten



Cold - Jaspur Bhatia, Anandpur (Pratapgarh)
Richmond - Keshanpur (Pratapgarh)
Zinc - Lead - Silver - Rampur Agucha (Bhilwara)
Rajpur Sarisa (Raj), Jaisalmer (Jaisalmer)

Part - C

Marks : 30

भाग - स

अंक : 30

Note: Attempt all questions. Answer the following questions in 100 words each. Each question carries 10 marks.

नोट : सभी प्रश्नों के उत्तर दें। निम्न प्रश्नों का उत्तर 100-100 शब्दों में दें। प्रत्येक प्रश्न के 10 अंक निर्धारित हैं।

11. Describe the problems of Geopolitics in context of South East Asian countries.

दक्षिणी पूर्वी एशिया की भू-राजनीतिक समस्याओं की विवेचना कीजिए।

- East South Asian countries comprise of India, Pakistan, Sri Lanka, Maldives, Afghanistan, Nepal, Bangladesh, Bhutan.
- [Problems] ① Terrorism → Pakistan and Afghanistan are base of terrorism support.
- ② Inter Country Disputes - Pak-Afghan, India - Pak etc.
- ③ Military Rule - Afghanistan, Myanmar facing military rule, threat to democracy.
- ④ China Influence → Nepal, Sri Lanka, Maldives are influenced by China's soft power, infrastructure development.

3.5(Three½)

(Q. Unit-III-B-10)



- ⑤ Big Brother Syndrome - other nation considers India as Big Brother
- ⑥ Socio Economic Backwardness - All are developing countries, struggling for development.
- ⑦ Lack of Trade and Infrastructure
- ⑧ Absence of big productive group
- ⑨ Failure of SAARC ⑩ Huge Population
- ~~11~~ CONCLUSION, ~~new~~ SAARC, BIMSTEC should be implemented effectively, should fight terrorism, increase trade and cooperation
- Self reliant, population control

12. Describe the development of non-conventional energy in Rajasthan.

राजस्थान में गैर-परम्परागत ऊर्जा के विकास का विवरण दीजिए।

SOLAR ENERGY :- ^{1st position} capacity - 142 GW
Present - 7338 MW
Reason - High Intensity

more than 325 days light of sun

1. Solar Power Plants - Bhadla, Noka
Fakodi, Pokhran, Bap etc.

2. Roof-top solar panel - Solar Cities

3. Solar plant - off grid, canals, Reservoir

WIND ENERGY - Capacity 125750 MW
Present 4332 MW, Jaisalmer,
Sikar - Nank

5(Five)

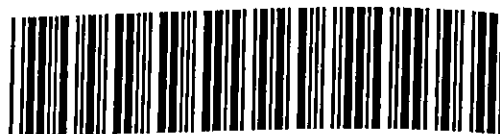
(Q.Unit-III-C-11)

1(One)

(Q.Unit-III-C-12)

1(One)

(Q.Unit-III-C-12)



3) ATOMIC - Rana Pratap Sagar Atomic Power Plant
Chittorgarh

4) BIO MASS → 15 Biomass plant
Installed capacity → 120 MW

5) HYBRID - water solar storage
power plant - Baran 2520 MW
- Pali 4500 MW

Technique from Italy

6) Bio Fuel - Bio Diesel / Bio Fuel
L esmond / Authority

By Jatropha, Karanj, Rotanjot -

7) Solarification of Diesel Pumps
Intention → • Solar power Policy - 2019
• Wind Energy Policy - 2019

In Conclusion, Rajasthan has best opportunity
for Non-conventional Energy. Total
Present → 12.500 MW

13. Explain the concept of Geo-heritage and highlight its potentialities in Rajasthan.

भू-धरोहर स्थल की अवधारणा को स्पष्ट कीजिए तथा राजस्थान में इसकी संभाव्यता पर प्रकाश डालिए।

provided tag by UNESCO

→ Geo-heritage are places which have
provided unique insight into the
scientific natural morphology of

0.5 (Zero 1/2)
(Q. Unit-III-C-12)

0.5 (Zero 1/2)
(Q. Unit-III-C-12)



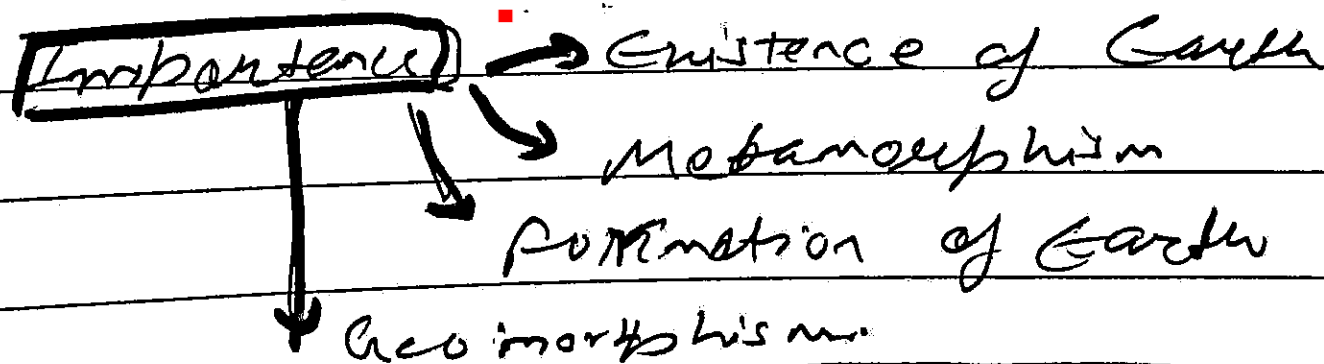
rocks provide information about
existence and formation of Earth.

Present Sites → Jaisalmer (Udaipur)
→ Ramgarh Crater Lake (Bikaner)

POTENTIALITIES

- ① Fossil Park Desert - Jaisalmer - Jurassic Time
- ② Sarda Granite } - PALI
Ban Conglomerate }
- ③ Nepheline Rock - Kishangarh, Ajmer
- ④ Malani Igneous - Jodhpur.
- ⑤ Great Boundary Fault - Eastern Rajasthan
- ⑥ Strombolite Fossil - Rejsanand
(Bhotunda)

*Rajasthan is formed by Gondwana land
which is old? provides various potentials.



Socially → community development is
pillar of Geo-Heritage

0.5(Zero½)
(Q. Unit-III-C-13)

0.5(Zero½)
(Q. Unit-III-C-13)

1.5(One½)
(Q. Unit-III-C-13)

Paper-II

30



SPACE FOR ROUGH WORK

