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Unit-I-A	10	6.5
Unit-I-B	25	13.5
Unit-I-C	30	13
Unit-II-A	10	3.25
Unit-II-B	20	8.5
Unit-II-C	40	18.5
Unit-III-A	10	5
Unit-III-B	25	10
Unit-III-C	30	11.5
Total Obt. Marks in Figures	200	89.75
Total Obt. Marks in Words		Eighty Nine+ $\frac{3}{4}$

प्रश्नोत्तर पुस्तिका को किसी प्रकार की क्षति पहुँचाई जाती है अथवा उस पर किसी प्रकार
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on shall be cancelled by the Commission, for which candidate will be liable.

PART - I

Paper Code

P-2



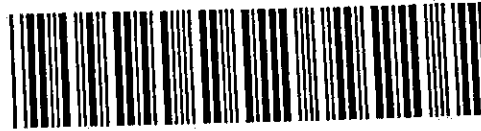
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CANDIDATE PLEASE READ CAREFULLY

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 नंबर 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 नोटः 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 - 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. 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।

According to Bhagawat Greta "Sthit pragya" is

emotionally, mentally stable person in positive as well as Negative situation

→ It helps in practice emotional intelligence in Administration

→ To take objective, rational, merit Based decision

→ To take Political-public pressure while decision making

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

बुद्ध की कौनसी शिक्षा आज सर्वाधिक प्रासंगिक है और क्यों?

Buddha's TriRatna - — Budhha, Dhamma, Sangha

philosophy of Astangk mark — To come

out of any suffering

Path of Golden mean — for Balanced Life

These teachings helps us in facing day to day

issues as well as making inclusive society.

1.75(One³/₄)

(Q.Unit-I-A-1)

1.5(One¹/₂)

(Q.Unit-I-A-2)



3. What do you understand by ethical dilemma?

नैतिक द्वन्द्व से आप क्या समझते हैं?

Ethical dilemma is a situation where we have to make a choice between ~~two~~ two or more ethically valid options.

Ep: personal values v/s professional value ~~of~~ of a physician while doing Abortion

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 Tri — Dev Rina, Pita Rina, Rishi Rina

Like the Rina puts a responsibility on human being towards society ~~similary~~ similarly administrator has

"Rina" towards "public". It Remind moral duty of Administrator

Administrator is moral Agent — Ordway Teed

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?

— Detachment theory helps in rational decision making

— Like Kant's "Good will" it is inspired by pure sense of duty

— As Recommended by "NOLAN" ~~Committee~~ it helps in maintaining Honesty

— Merit, objectivity, integrity are achieved

Not

नोट

6.

1.25(One¹/₄)

(Q. Unit-I-A-3)

0.75(Zero³/₄)

(Q. Unit-I-A-4)

7.

1.25(One¹/₄)

(Q. Unit-I-A-5)



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. 'Men's Moral Advancement depends upon complete advancement of society.' Discuss.

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

Man is a social animal. and society is

the 2nd stage of socialization after family

→ Men learns values like Respect, Harmony, brotherhood
From society

→ Gandhi Ji's "Sarvodaya" concept talks about it

→ John Rawl's distributive Justice talks about

inclusive society for moral growth.

→ As our constitution envisioned "inclusive society"
promotes morality.

7. "Family is the most important institution for the moral development of man". Evaluate this statement.

"परिवार मनुष्य के नैतिक विकास की सबसे महत्वपूर्ण संस्था है।" इस कथन की समीक्षा कीजिए।

Family is the first socialization of man.

it inculcate moral values by ① Example setting

② punishment/Reward ③ Love - care ④ Child Rearing

child learns — From mother — Love, care, respect

Sacrifice, Hardwork, self learning

From father — Discipline, Hardwork, Commitment

From siblings — Brotherhood, Helping each other

From Grand parents — Spirituality, devotion

Some Negative values like Gender bias, superstition, Casteism
also learned from it.

2(Two)

(Q.Unit-I-B-6)

2.5(Two½)

(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।

Kantⁿ in his Deontological ethics talks about ultimate good. It is the good which has been achieved by good ends as well as good means. He talks about Goodwill in it. Relative imperative - It has dependency on outcome, emotions and Results. Categorical imperative - It is strict imperative with no exception and no emotional or result bias. According to Kant moral laws are Categorical imperative and Ultimate good is achieved by it.

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?

Minimum Basic Needs - Food, Education, Health, Housing and Right to work
our Constitution Under Article - 21
"Right to life & dignity" talk about these needs.

Administrator should use "SMART" Governance. As prescribed by ARC to provide He/she should provide "public goods" with values like Honesty, Integrity.

10.

C

C

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Note

नोट

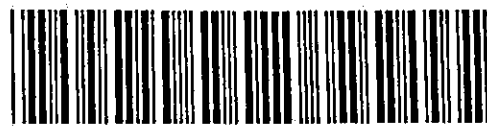
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2(Two)

(Q.Unit-I-B-9)

3(Three)

(Q.Unit-I-B-8)



Schemes of ~~social~~ welfare should be taken to last mile for weaker section < Distributive Justice
Gandhi's talisman

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?

As per 2nd ARC (2006) and Nolan committee

following values are required:

- ① Openness ② Selflessness ③ Objectivity
 - ④ Honesty ⑤ Accountability ⑥ Leadership
 - ⑦ Integrity ⑧ Rationality ⑨ Non-partisanship and political neutrality
 - ⑩ Empathy and compassion for weaker section of society
 - ⑪ Courage ⑫ Swadharma & Lok-Samgraha
 - values of Gita ⑬ Responsibility
- These will help establish ethical governance.

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।

Mahatma Gandhi like Immanuel Kant believed in a philosophy where ends as well as means both should be ~~moral~~. He said that

4(Four)

(Q.Unit-I-B-10)

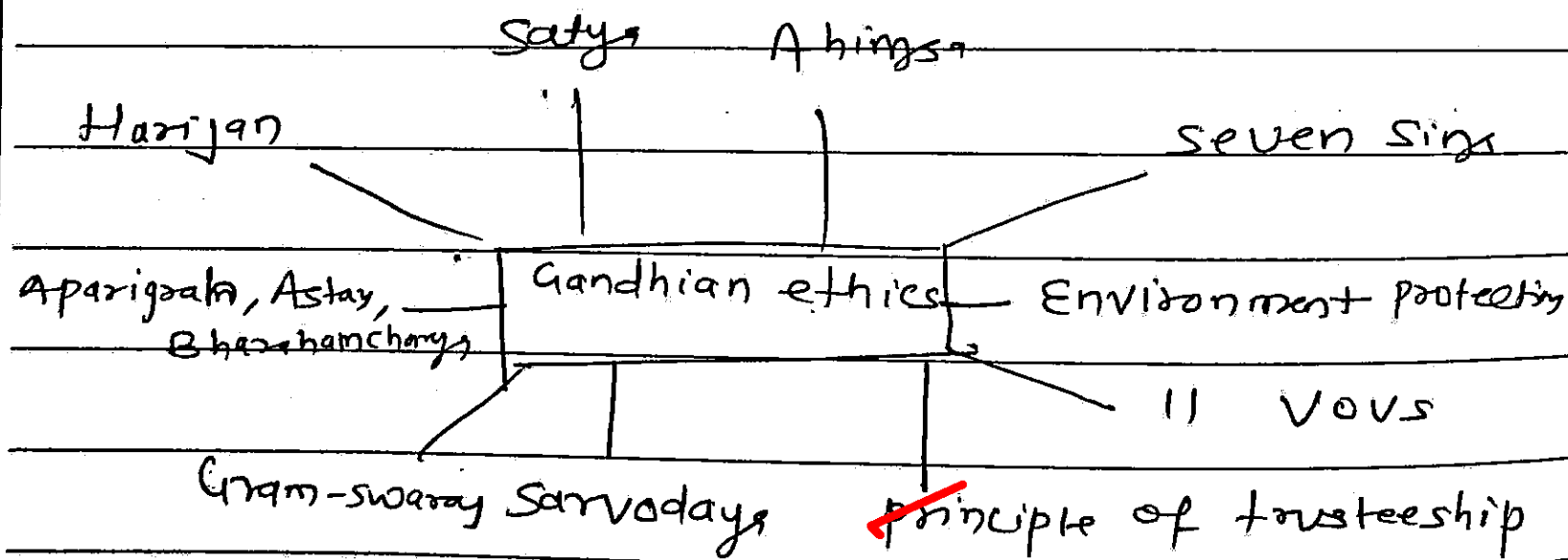


Humans ~~cannot~~ be used as means to achieve a moral end. End achieved like that will not be long ~~lasting~~.

0.5(Zero½)
(Q. Unit-I-C-11)

Example: Gandhiji believed that independence achieved through negative means (like Himsa (Violence)) will not be long lasting. So he argued that if Satya is end that ~~Ahimsa~~ is mean. Gandhi's ways to achieve both as moral

0.5(Zero½)
(Q. Unit-I-C-11)



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

0.5(Zero½)
(Q. Unit-I-C-11)

Based on above mentioned principle Gandhiji said that Sarvodaya $\rightarrow$ economic, social, political, spiritual well being of all

0.5(Zero½)
(Q. Unit-I-C-11)

Sections of the society should be there.

Inspired by Bhagavan Mahaveer, Bhagavat Gita Gandhiji believed in means as well as ends to be moral, ethical & ~~auspicious~~

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



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।

Ethical decision making : Taking the decision according to code of ethics (COE) which are aims for betterment of administration as well as society as a whole is called ethical decision.

Factors in ethical decision making : -

- ① Legality : if available, code of ethics should be followed
- ② Voice of Conscience : To listen the soul
- ③ means as well as ends are moral - Kant
- ④ Benefits maximum people - Utilitarian ethics
- ⑤ Benefits every section of society - Sarvodaya
- ⑥ dutifulness - Geeta's swadharma
- ⑦ practical & balanced - Aristotle's Golden mean

To Harmonize in case of conflict : -

- ① I will use Gandhiji's 'Talisman' - last man is the link
- ② Aristotle's and Buddha's path of Golden mean
- ③ will follow constitutional morality & Geeta's Apaddharma

Example : if a bike rider takes injured person without

Helmet, I will not fix him → As per Geeta's

"Apaddharma" there can be rule break in emergency

2.5(Two½)

(Q.Unit-I-C-12)

2.5(Two½)

(Q.Unit-I-C-12)

0.5(Zero½)

(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।

"Learning Never Ends" is a famous quote by someone which teaches us learn from other experiences and strive for better governance each day. $\Rightarrow$ our Constitutional maker while drafting the constitution learnt from successful model of democracies ~~across~~ across world and incorporated them to make our constitution.

$\Rightarrow$ successful governance model are followed by every one — Eg: "Bhilwara model"

$\Rightarrow$ Mahatma Gandhi learnt from successes of philosophy of Mahavira, Geeta, Tolstoy and incorporated them into his ways of struggle.

$\Rightarrow$ For moral, ethical governance every administrator should be ~~be~~ open and welcoming to new model and changes. For Example success model of "Delhi schools" is being followed or "Dungarpur model of ~~of~~ Swachh Bharat" is ~~leading~~ leading to better governance across India.

Hence governance will become inclusive if we learn from each other's success.



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।

Nuclear fission	Nuclear fusion
① It is a reaction of splitting of one combining two atom into two atoms	① It is combining of two atoms into one
② ${}_{92}^{235}\text{U} + {}_0^1\text{n} \rightarrow \text{Ba} + \text{Kr} + 3{}_0^1\text{n}$	② $4{}_1^1\text{H} + 2e^- \rightarrow {}_2^4\text{He} + 4v$
③ Used in atomic Energy	③ Used by sun to make energy.

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 is used for artificial ripening of fruits such as mango, papaya etc. It introduces growth hormones in fruits which helps promote fruit growth. ~~Calcium carbide (CaC₂) is used by food processing industry for quick turnaround on fruit crops.~~

0.25(Zero¹/₄)

(Q.Unit-II-A-1)

0 (Zero)

(Q.Unit-II-A-2)



3. What is an OTT platform?

ओ.टी.टी. प्लेटफॉर्म क्या है?

Over the Top platforms are Internet based service provider which provide video, Audio content to user on demand.

on mobile, tablet
Eg: Amazon prime, Hotstar, Netflix

→ Initially they were content delivery platform

→ Now they are producing the content as well

→ Cost

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।

Radio frequency Identification works on principle of which uses Radio frequency

transmitter, An Antenna, An Reader.

Reader Reads the Radio waves and identifies it.

Uses — ① Fast Tag (Toll) ② Automatic Gate (door) control

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?

polar satellite

Geosynchronous satellite

→ launched over poles

→ Launched in orbit

in LEO or MEO

at 36000 km in GEO

→ orbital height — 1000-2000 km

with GTO help

→ Time period — 90 min

→ Time period — 23 Hr 56 min (≈ 24 hrs)

uses: Weather, earth observation

uses: Communication satellite

→ PSLV

→ GSLV

0.5(Zero^{1/2})

(Q. Unit-II-A-3)

0.5(Zero^{1/2})

(Q. Unit-II-A-3)

0.75(Zero^{3/4})

(Q. Unit-II-A-4)

1.25(One^{1/4})

(Q. Unit-II-A-5)



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।

Giloy is a medicinal plant used in Ayurveda since ages and is also found in Rajasthan.

- ① It is a immunity booster
- ② Giloy helps in making our WBC and blood healthy.
- ③ Giloy kaddu ~~was~~ ^{is} used as Anti-pyretic
- ④ It is used as Anti-diabetic tonic
- ⑤ In Covid-19 time Giloy was used as Anti-inflammation and immune system enhancer.

7. What is Cryptocurrency? What are its advantages and disadvantages?

क्रिप्टोकॉरेंसी क्या है? इसके फायदे और नुकसान क्या हैं?

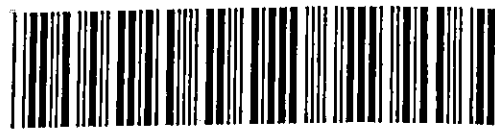
Cryptocurrency is digital currency which uses block chain technology as distributed ledger to generate and maintain currency. → It is decentralised currency with complete Record in Block form. Eg: Bitcoin, Ethereum India is planning a law to regulate it.

3.5(Three½)

(Q.Unit-II-B-6)

2(Two)

(Q.Unit-II-B-7)



Advantage

Disadvantage

① It is encrypted and secure	① Use of black money
② Low transaction cost	② Sovereign Control
③ Transparency	of Banks loses
④ Blockchain technology is used in other sectors	③ Terror funding
	④ Environment pollution ↳ High energy

0.5(Zero½)
(Q. Unit-II-B-7)

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?

1 Generation — 1979, Analog signal

2 Generation — 1990 — GSM, CDMA, digital signal

2.5 Generation — Used GPRS for internet

3 Generation — ²⁰⁰⁰ HSPA and High internet speed

4th Generation — 2008, LTE, VoLTE, High speed

5G : 2020-21 : It uses multiple channels at a time to deliver

— High speed (more than 20 Gbps)

— Low latency (1 ns)

— Launched in USA — Verizon

— India: trial: Airtel, Jio

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

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

MSS or Missiles and Strategic System

is network of laboratory by DRDO to

Upgrade India's missile infrastructure.

after 16 MDA of 1983, India

1(One)
(Q. Unit-II-B-8)

1(One)
(Q. Unit-II-B-8)

0.5(Zero½)
(Q. Unit-II-B-9)



is working on new missile systems
such as — Agni-5, Brahmos 2,
Surya missile etc.

Laboratories — BRL, Hyderabad

Defence Lab Jodhpur

missile in ICMDA — ~~x~~ Prithvi, Agni,
Trishul, Nag, Akash

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) Carbon's property of Catation and having
4 valence electrons helps it in forming
large number of compounds.
⇒ Carbon can be single (C-C), double (C=C)
and triple (C≡C) bond. ~~it~~
⇒ It can make long chain of C-C bonds.

2(Two)

(Q.Unit-II-C-10)



⇒ Carbon along with Hydrogen (H), makes Hydrocarbons

⇒ It supports cyclic bond (benzene) and various functional groups

b) Domestic Application	Industrial Application
⇒ Diamond is used in jewelry and ornaments	⇒ Diamond $\left\{ \begin{array}{l} \text{mining} \\ \text{cutting} \end{array} \right.$
⇒ Graphene (1 layer of Graphite) used as Tennis racket	⇒ Graphite $\left\{ \begin{array}{l} \text{Conductor} \\ \text{CNT} \\ \text{LCD} \end{array} \right.$
⇒ Energy drinks, Sweetners	⇒ Fullerene: Bearing
⇒ insecticide, Anti Alcohol, Glycerol, Glucose are used	⇒ Hydrocarbon: energy
	⇒ LPG, ENG , Natural gas.

1(One)
(Q. Unit-II-C-10)

1(One)
(Q. Unit-II-C-10)

1(One)
(Q. Unit-II-C-10)

c) Artificial Sweetner — ~~Saccharine~~, ~~Aspartem~~, ~~Alitame~~

Food preservatives — ~~Vegetable oil~~, ~~Sodium Benzoate~~,
pasturization
Anti-Oxidants, Carotene, ~~etc.~~

1(One)
(Q. Unit-II-C-10)

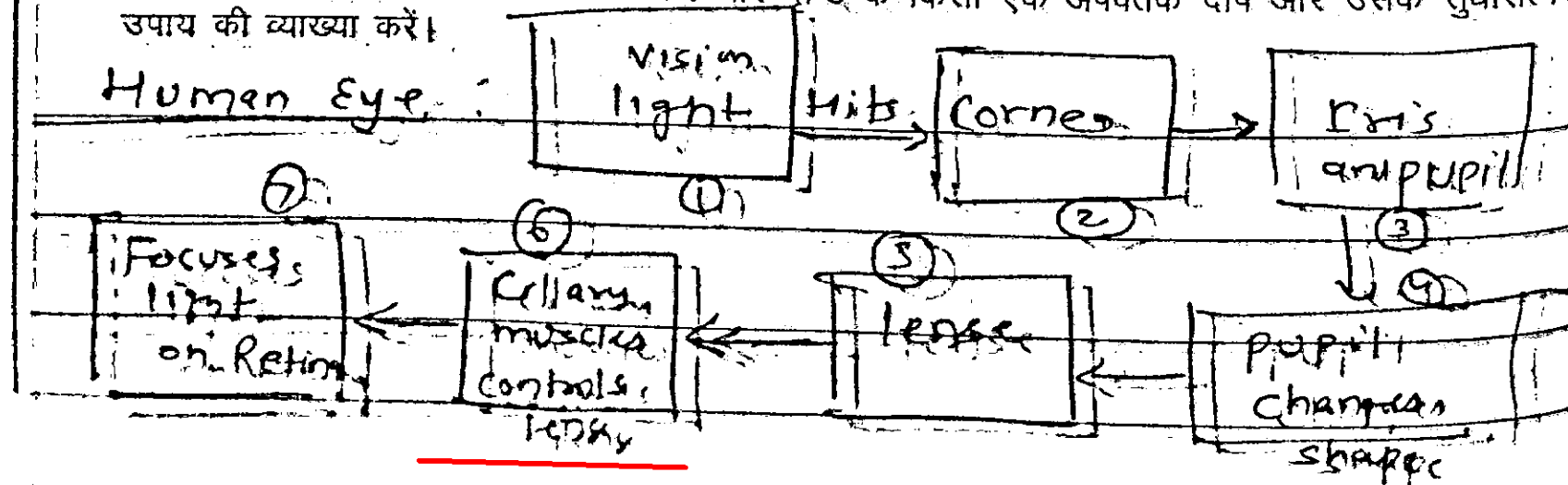
Ores of Zinc — ~~Zns~~, ~~Zno~~
(Zinc sulphide)

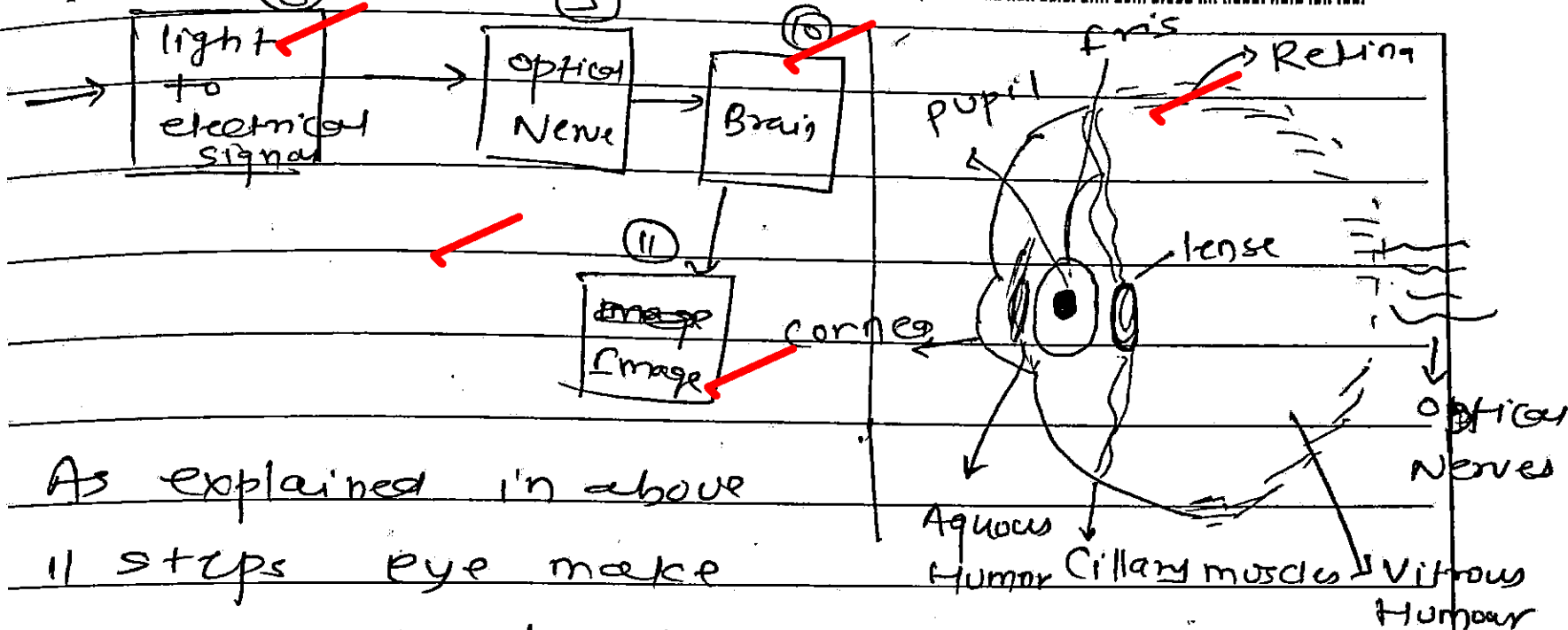
0.5(Zero 1/2)
(Q. Unit-II-C-10)

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 सुधारार्थक उपाय की व्याख्या करें।

Human Eye:





As explained in above
11 steps eye make
image with the help of Brain.

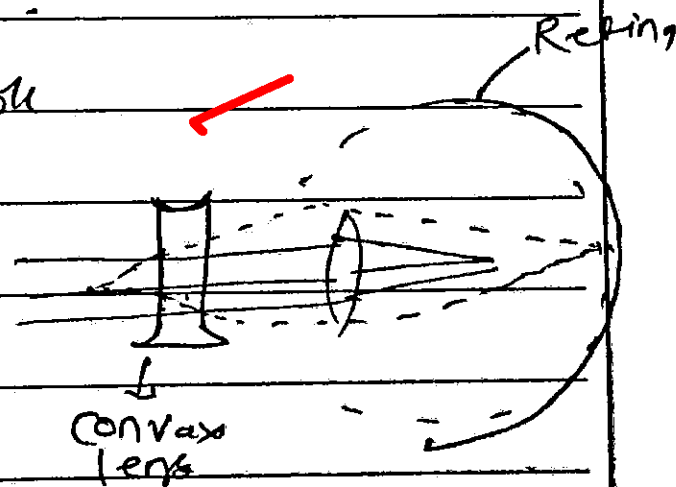
Defects in eye — ① myopia ② presbiopia ③ Hypermetropia

Myopia (Near-sightedness): In this defect image
is formed before retina.

— far objects are not visible

— Far point is near than
infinity

Corrective measure : Convex
lense is used (-1 power)



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?

In the covid-19 era for testing of virus
detection PCR (Polymerase chain Reaction)
method was used.

In Real time PCR, Virus sample

1(One)

(Q.Unit-II-C-11)

2.5(Two½)

(Q.Unit-II-C-11)

1(One)

(Q.Unit-II-C-11)

1(One)

(Q.Unit-II-C-12)



is amplified by polymerase chain reaction.

If DNA Virus $\rightarrow$ PCR Used

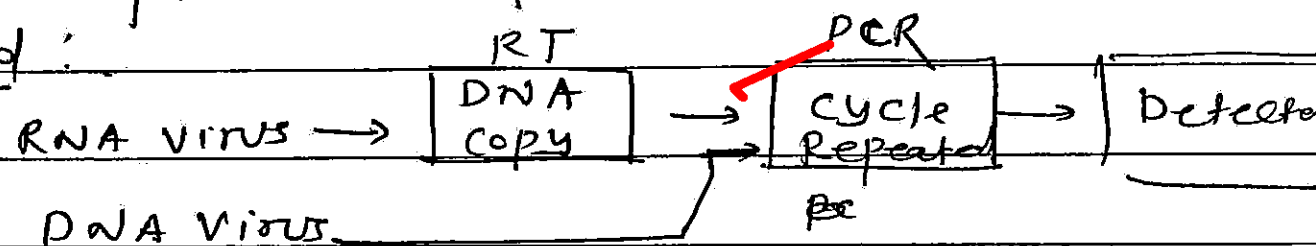
If RNA Virus $\rightarrow$ RT-PCR Used

where RT means - Reverse transcription

In Real time PCR, Virus is amplified and identified in ~~real~~ time to detect it.

It is helpful for pandemic control.

Method:



CT Value - "cycle threshold" it is

minimum no. of cycle to detect corona virus which having PCR amplification.

If virus content low $CT \rightarrow$ High

If virus load high $CT \rightarrow$ low

$CT < 35$: - Covid positive

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) सत्येंद्र नाथ बोस

(iv) मेघनाद साहा

(v) हर गोबिंद खुराना

(i) Homi Bhabha - (i) pioneer of india's nuclear programme, (ii) chairman of Atomic Energy Commission (1948) (iii) Founded - APSARA, CYRUS Research Reactor (iv) major Role

0.5(Zero $\frac{1}{2}$)

(Q. Unit-II-C-12)

1(One)

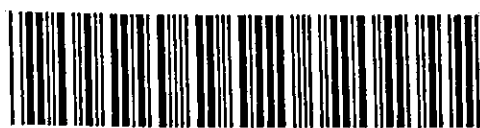
(Q. Unit-II-C-12)

2(Two)

(Q. Unit-II-C-12)

1(One)

(Q. Unit-II-C-13)



(ii) M. Vishveswarya : Civil Engineer, Bharu Ram, M. Bomb

⇒ Build Krishna sagar dam on Cavery

- ⇒ Several Dam and Hydro power projects

⇒ Engineers day celebrated on his birthday

(iii) $\Rightarrow$ S. N. Bose : physicist and scientist

⇒ Discovered Higgs - Boson particle

⇒ DISCOVERED Bose - Einstein condensate (BEC)

⇒ Research on Big Bang, Particle physics

(iv) Meghad Saha — studied at ^{Calcutta} ~~Bengal~~ Univ

⇒ Contribution in physics and Astronomy

→ Helped in growth of physics dept at Calcutta University

(v) Hargobind Khurana - Biologist and Geneticist

⇒ Discovered DNA splitting and Genomes

⇒ won nobel prize in medicine

⇒ His Research is Basis of Biotechnology.

(65 Marks)

(65 अंक)

Marks : 10

अंक : 10

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 era - 245 MYA - 65 MYA

MyA - million Year Ago

1 (One)

(Q.Unit-II-C-13)

1(One)

(Q.Unit-II-C-13)

0 (Zero)

(Q.Unit-II-C-13)

0 (Zero)

(Q.Unit-II-C-13)



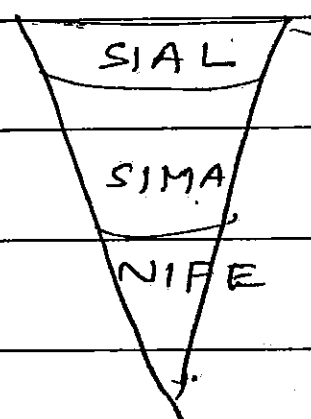
mesozoic era is part of phanerozoic
eon (570 myA to present)

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

SIAL is the crust area
of earth. which is upper
most layer.

density — least

depth < continent : 30 km
ocean : — 5 km



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

Shivalik Himalayas was formed from
Great Himalays, which was formed by
Converging Plate Boundary of Indo-Australian
and Eurasian plate. With Denudation due to
Rivers Shivalik was formed (40 myA)

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

① North Sahyadri — Maharashtra,

Gov : Mahabaleshwar, Kalsubai

② middle : Kr : Baba Buden Hill

Kudremukh

South Sahyadri

2(Two)
(Q. Unit-III-A-1)

0.5(Zero½)
(Q. Unit-III-A-2)

0.5(Zero½)
(Q. Unit-III-A-3)

1.75(One³/₄)

(Q. Unit-III-A-4)

③ Cardamom Hills (South Sahyadri) — Agastamalai
Annampala

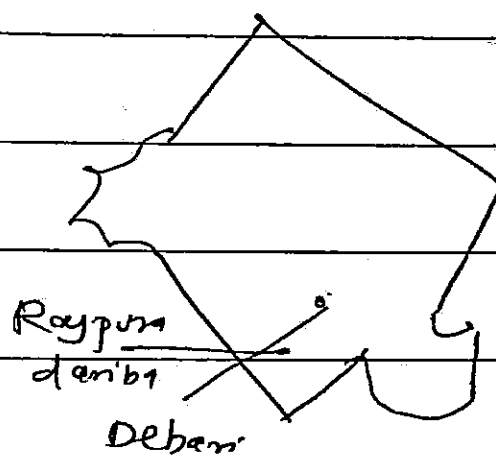
5. Write the zinc producing areas of Rajasthan.
राजस्थान के जस्ता उत्पादक क्षेत्रों का उल्लेख कीजिए।

Zinc Areas :

Raypur Damb, Risabhdev
(Udaipur)

— Debari

— Rayasamand

0.25(Zero¹/₄)

(Q. Unit-III-A-5)

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।

Circum Pacific belt of volcanoes is largest

volcanous belts - located at converging

plate boundary of Europe and America

— 61% (2/3) volcanoes occurs here

— explosive volcanoes are found here

it is a Acidic type of volcano

but

— Eg: Mt. Fujiyama (Japan), Phillipine etc.
Shastina (USA), Hood-Randier (USA)



Volcanoes of Pacific Ocean, North America are part of it.

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

Rocky mountain is situated in USA and Canada. It is fold mountain.

It is longest range of North American. It has intermontane plateau such as Columbia, Alaska's plateau, Colorado Sierra Nevada etc.

Yellow stone N.P. is located here where Geysers are found.

Deserts of Great Basin, Arizona (Mojave) are here.
 Rivers - Colorado

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

Tropical evergreen forest of India

Location: Western Ghats, parts of TN, North East India, Hill areas.

Avg Rainfall: more than 200 cm

Height: greater than 60 m.

These forest are part of Bio-

1.25 (One 1/4)

(Q. Unit-III-B-6)

2 (Two)

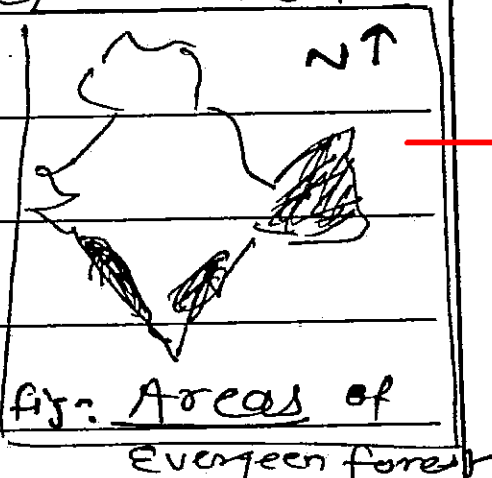
(Q. Unit-III-B-7)



Diversity hotspot regions ~~in~~ in India.

Example — mango, ~~Sishum~~,
Sagwan, Rosewood, etc.

Most economically useful
forests.



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।

Hadoti plateau

Area — 67

population — 87

Hadoti plateau : ~~Thalawar~~,
Bundi

→ Vindhyan Kagarland : ~~Baran~~

Rivers — ~~Chambal~~, ~~parwan~~, ~~parvati~~

Soil — ~~Black soil~~, self ploughing

Hills — ~~Bundi Hills~~, ~~mukondn Hills~~

crops — cotton, soyabean

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

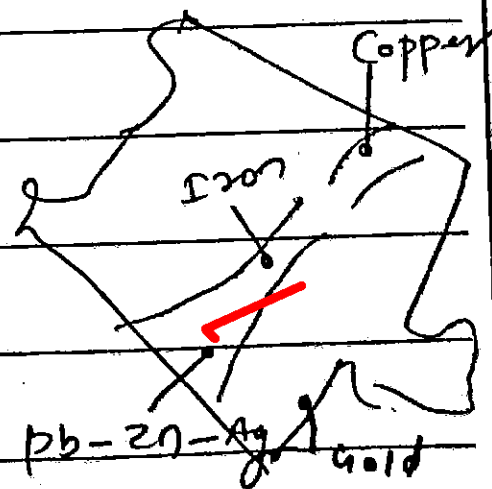
राजस्थान में प्रमुख धात्विक खनिजों के वितरण की संक्षेप में विवेचना कीजिए।

Aravalli belt is the source

of major metallic minerals

Iron — ~~Moriza Banela~~
(Jaipur)

Copper — ~~Khetai~~ (Jhonthanu)



2.25(Two 1/4)

(Q.Unit-III-B-9)



Lead-Zinc - Raypura Damiba (Udgaipur)
Gold - Lilawani (Banswara)
 metallic minerals are g.y. of total production
 of India.

2.5(Two½)
 (Q.Unit-III-B-10)

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।

South East Asian Nations also known as

ASEAN (Association of South East Asian Nations)

is group of 10 countries.

ASEAN — 1967, Philippines, Myanmar, Laos,

Cambodia, Vietnam, Malaysia, Indonesia, Singapore, Brunei

problem of South China sea: China as per

its "9-dash line" claims several islands

of South China sea from Philippines, Vietnam.

China has monopoly in trade with ASEAN.

Mallacca Strait: mallacca strait is strategic

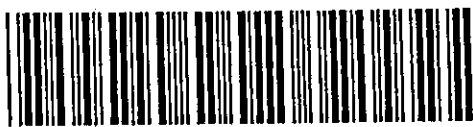
choke point where China is securing

its trade security.

RCEP: Recently concluded Regional
 comprehensive partnership agreement-

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

1.5(One½)
 (Q.Unit-III-C-11)



is a 15-Nation trade deal.

[Role of USA]: USA being a major force in Pacific Ocean is a major defence partner.

[QUAD]: Newly emerging Quad group (USA, Japan, India, Australia) are working together to balance China in Indo-Pacific.

[Significance for India] — Look East Policy 1991

⇒ Ganga - Mekong project

⇒ Act East Policy - 2014

⇒ IMT Trilateral Highway

⇒ Kaladan multimodal projects are India's interest in ASEAN countries.

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

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

Rajasthan being a major

source of solar, wind power

have other conventional sources as well.

Solar: Potential - 142 GW

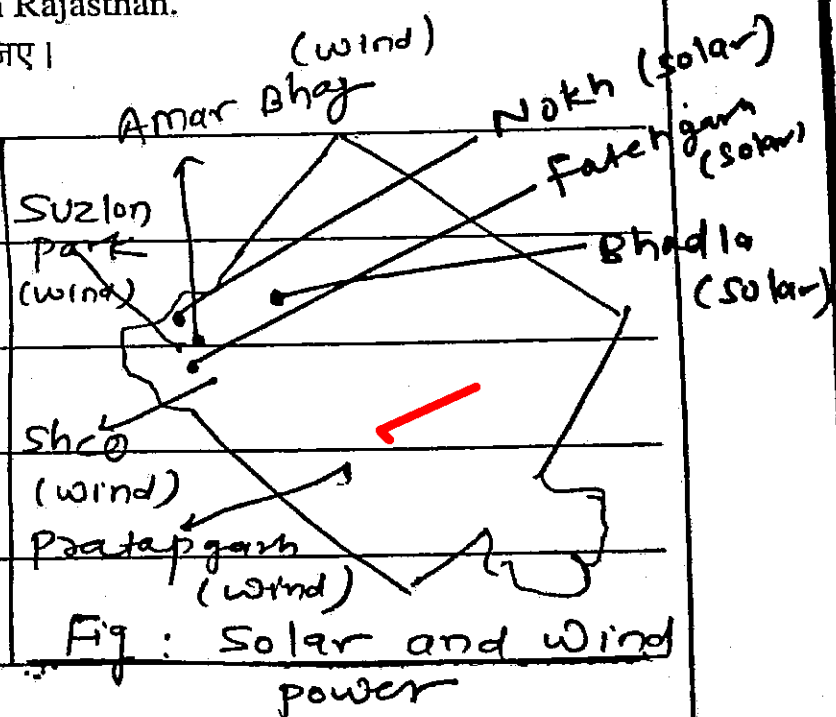
Intensity - 6-7 kW/m²/day

days — 325 days/yr

current capacity - 9238 MW

Target - 30,000 MW (Solar Policy - 2019)

Rank in India - 1st



2(Two)

(Q.Unit-III-C-11)



Wind power :- potential - ~~127~~ GW

current installed capacity - ~~4300~~ MW

As per ~~Policy~~ Wind and ~~hy~~ hybrid policy - 2019

Hybrid parks will be developed.

major parks - Suzlon (Jsm), Shco (Barmar)

Nuclear power :- Rawat Bhatta (Chittor)

current production - 457 MW

Bio mass power : Jule flora, mustard Husk

capacity installed - 120 MW

Geothermal power : Geothermal power

can be new potential areas where

power trapped inside crust can be harness

Biogas energy :- using cow dung and

organic material

Hence with the non-conventional sources

Rajasthan can help India achieve ~~Paris~~ Goals by 2030.

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।

Geo-heritage : Geo-heritage are those

Sites of geological importance which are

protected using bottom? - up approach to

conserve, educate people and study history of evolution of earth.

4(Four)

(Q. Unit-III-C-12)



UNESCO Geo-Heritage Sites : UNESCO heritage

sites — 44 countries, 149 sites

concept started — 2005

approved by UNESCO — 2015

Significance — Conservation? tourism, education

India does not have any UNESCO ^{Geo}-heritage sites.

However as per Geological ~~survey~~ of India (GSI)

34 sites are declared as National geological monuments (NGM)

potential in Rajasthan — state have 12

GSI approved NGM sites and ~~other~~ significant areas

① Jawar mines, Udaipur — Bickpho

② Raypur-dariba, Udaipur

③ Malani igneous (Jodhpur)

④ Ramgarh Crater (Bikaner) — Crater lake

⑤ Kishangarh Stone area, Ajmer

⑥ Akal-wood fossil park — Jaisalmer — Jurassic Age

⑦ Bhajunda Geological site (Chittorgarh)

Other sites — Pushkar, Nakki, Pali conglomerate etc.

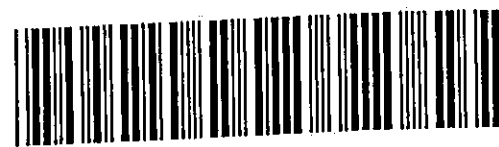
conclusively these Geo-site can not only help in conservation but also boosting tourism in state.

1(One)

(Q.Unit-III-C-13)

2(Two)

(Q.Unit-III-C-13)



SPACE FOR ROUGH WORK

SPEECH LIT

C E N A
 ↓ ↓ ↓
 CONST. Eg. Nolan Arc

- 11 vowels
- ~~S~~ ~~platform~~
- Salva & Ahimsa
- Sarvodaya
- Trusteeship
- Gram Swaraj - min govt;
no police
- Harijan, women power
- Seven sins
- Env. → 4th part

→

