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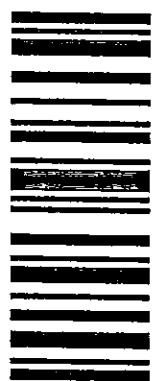
candidate or any attempt is made to damage the answer script or any marking as

on shall be cancelled by the Commission, for which candidate will be liable.

PART - I

Paper Code

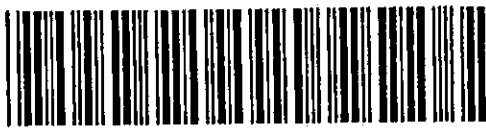
P-2



207295

Karmveer Singh Rank 15

UNCLASSIFIED



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.

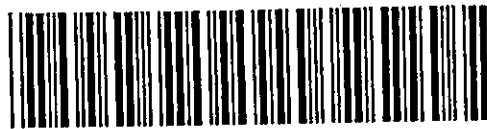
Paper-II

4



SPACE FOR ROUGH WORK

Karmveer Singh Rank 15



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।

Stit Pragya $\Rightarrow$ State of stability & indifference.
It helps an administrator to discharge his responsibilities without indulging in corruption & unwanted pleasure or disturbed by pains & struggles attached with duty.

0.25(Zero $\frac{1}{4}$)

(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?

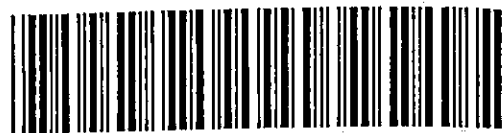
Ahimsa/Non-violence $\Rightarrow$ In today's fractured society where hate, violence has become a norm Ahimsa is the only way out. It teaches us tolerance & love for fellow beings.

1.25(One $\frac{1}{4}$)

(Q.Unit-I-A-1)

1.25(One $\frac{1}{4}$)

(Q.Unit-I-A-2)



3. What do you understand by ethical dilemma?

नैतिक द्वन्द्व से आप क्या समझते हैं?

State in the process of decision making when there is conflicting moral values, standards.
A situation where it is hard to satisfy all the moral values one holds.

eg. law v/s conscience, life v/s duty.

1(One)

(Q. Unit-I-A-3)

0.25(Zero 1/4)

(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 means moral obligations.

In administration, a public servant has Rin of society where he has learnt everything. It is repaid by following duty, public welfare and expressing commitment to do public service with honesty & integrity.

0.5(Zero 1/2)

(Q. Unit-I-A-4)

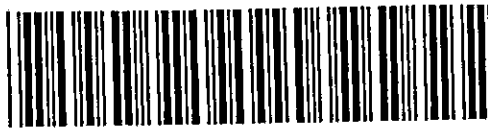
5. What way 'detachment theory' of Bhagvad Geeta is significant in the life of an administrator?

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

In administration it is necessary to get detached from the lure of money, fame and turpitude so that one can do his day duty to effect public welfare without any prejudice.

1.5(One 1/2)

(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।

Above quote puts society at the centre of moral advancement in human life. It says that without growth of moral standards in society, a man can not grow. (1) Society influences a person the most as he spends his whole life there. (2) Without strong morality & ethics ^{in society}, a person can not sustain himself. (3) Society is all pervasive. (4) First formal school of person. (5) Teaches team building, tolerance etc.

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 informal school & mother is the first teacher in anyone's life. Person spends early time here and develops emotional connect with family members. Hence what he learns here are longlasting & effective.

Importance - (1) Things learned in tender age are permanent. (2) Emotional bond is strong. (3) Touches all aspects of life.

Values learned - (1) Mother → care, empathy, love, responsibility. (2) Father → hard work, Responsibility, care, humility, pride.

There are negative values like superstition, prejudices etc. also creeps in as a byproduct.

2.5(Two½)

(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।

Kant is deontological moral theorist - who places emphasis on duty. Work done with sense of duty is the ultimate good. To define good he gave concept of categorical imperatives.
⇒ Acts which can be universalized & does not harm humans & treat them as an end in themselves are categorical imperatives.

He doesn't believe in relative imperatives as they make any act subjective, whereas for him moral laws are universal & results in ultimate good.

9. What are generally considered to be the minimum basic needs of an individual to lead 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 मान गयी हैं? इन न्यूनतम को सुनिश्चित करने में एक प्रशासक की क्या जिम्मेदारी है?

Minimum basic needs ⇒ Humanist philosophy.

- ① Right to life, liberty & dignity. ② Food ③ Shelter
④ Employment- ⑤ Equality of opportunity, ⑥ Free-will
⑦ Non-discrimination etc. e.g. Sarvodaya of Gandhi.

Steps needed ⇒ An administrator should ensure his commitment to public service & welfare.
Sarvjan-hitay, Sarvodaya, Antyodaya. He should.
① Not-discriminate. ② have empathy. ③ work objectively.
④ maintain integrity & honesty in duty.

3(Three)
(Q. Unit-I-B-8)

0.25(Zero 1/4)
(Q. Unit-I-B-9)

2.5(Two 1/2)
(Q. Unit-I-B-9)



Additionally he should focus specilly on poor & downtrodden and should ensure that all the basic needs of a person are available to him easily.

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?

Following are required to maintain excellence.

- ① Integrity $\Rightarrow$ of thought, speech and action.
- ② honesty $\Rightarrow$ should always preach truth effectively.
- ③ Objectivity $\Rightarrow$ should assess every situation based on it's merit. He shouldn't be clouded by prejudices.
- ④ Impartiality $\Rightarrow$ should not favour any one discriminately.
- ⑤ Non-partisanship $\Rightarrow$ should not cloud his judgement by favouring a particular ideology or supporting particular.
- ⑥ Public welfare $\Rightarrow$ Biggest sense of duty is people's welfare.
- ⑦ Dedication to public service $\Rightarrow$ All efforts for public duty.
- ⑧ Empathy $\Rightarrow$ Most cardinal value for an administrator.
- ⑨ others $\Rightarrow$ Leadership, openness etc.

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।

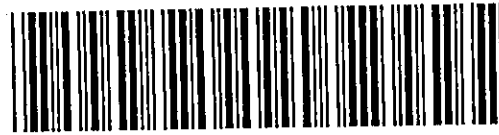
11. "Necessarily related, means cannot be separated from ends. Therefore, both must be auspicious for real and lasting success." Explain the above comment in the context of Gandhian ethics.

"अनिवार्यतः सम्बन्धित होने के कारण साधनों को साध्य से पृथक 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।

Above quote talks about - inseparability and centrality of ends and means while determining the morality & success of any act.

4(Four)

(Q. Unit-I-B-10)



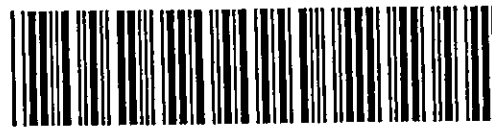
Gandhiji too believed in importance of just means to achieve the just-ends. For him ends can not justify the means.

Gandhiji placed more weight upon morality of means adopted. It is okay to falter in end while following right-means. Act done will still be called as moral.

'As we sow, we shall Reap'

when act is done with the sense of duty, it makes person empowered, pious and adds to the success of work. Such success is long lasting as path adopted is universal and no matter what the consequence is person will stick to the path he undertook.

Gandhiji emphasised upon adopting Truth and non-violence in changing the heart of any culprit. Such an act would change him permanently. In this quest a person should never hate anybody and should be ready to bear the pain & misery. But should never change the mean to achieve the end.



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 is a decision which confirms to the prevalent ethical standards and moral values.

Factors ① Having a good sense of moral values. ② Right attitude. ③ Empathy. & sense of responsibility. ④ Full knowledge of facts. ⑤ Agency of free will. ⑥ Enlightened conscience. ⑦ ~~Solid~~ body of law & code of conducts.

Ethical Dilemma

It is a case of moral judgement going against the prevalent ~~law~~ administrative decision.

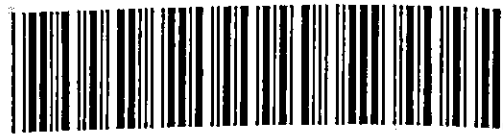
Harmonisation ⇒ Eg. As railway minister. Lal Bahadur Shastri once resigned due to a rail accident. He had no legal obligation to do that but he did so to follow the moral precepts of Accountability & Leadership.

Decision Making ⇒ ① Any decision should not break law ② Decision should be justifiable morally ③ should maintain transparency in whole exercise. ④ should clearly spell out the moral dilemma involved. ⑤ should weighup all options & at last should go with an option which is rational & moral in the given situation.

2.5(Two½)
(Q. Unit-I-C-12)

2(Two)
(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।

In Administration and governance we can see this philosophy in the concept of Indian polity i.e. "Cooperative & Competitive federalism" with this motto all the states compete with each other to better their governance record at the same time they try to learn from each other by adopting good practice.

eg. AMUL of Gujarat It was a huge success in Anand district in the area of cooperative farming. Today all the country has adopted the same model. SARAS in Rajasthan eg. Digital land records Mother Dairy.

It was first adopted by Andhra govt. Now pan India

Benefits of learning (1) It teaches us best practices
 (2) Makes us avoid mistakes which are obvious ones
 (3) Gives us tried and tested model of governance.
 (4) Helps save us money and resources.
 (5) It leads to increase in efficiency and effectiveness in service delivery.

Though such models should be calibrated acc. to local needs



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।

Both reaction releases large nuclear energy.

Fission $\Rightarrow$ Breaking of unstable & heavy radio active elements.

$\rightarrow$ either happens automatically or through neutron bombardment

ex. U^{233} , U^{235} , Thorium $^{232}_{90}U + ^1_0n \rightarrow ^X_A + ^1_0n$

$\rightarrow$ it can be controlled, civil energy etc.

Fusion $\Rightarrow$ smaller radioactive elements combine to get

stability. ex. $2^1_1H + 2^1_1H \rightarrow ^4_2He + 2^1_0n$

$\rightarrow$ it can't be controlled, ex. H-Bomb, in sun.

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 produces an environment-

of high and controlled temperature. It induces

biological reaction and activates regulators

responsible for ripening of fruits.

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?

"Over the top"

Platforms which provides entertainment services like audio-visual content with the help of Internet. It doesn't use traditional route of cables.

eg. Amazon prime, Netflix.

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

(Q. Unit-II-A-3)

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

(Q. Unit-II-A-3)

0.25(Zero $\frac{1}{4}$)

(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 सिद्धांत क्या है? इस तकनीक के दो उपयोग दीजिए।

Application $\Rightarrow$ Fast tag, Parking tickets

RFID $\Rightarrow$ It works on the principle of

Identification & collection of information by reading radio waves emitted by emitter.
Reader collects the information.

1.5(One $\frac{1}{2}$)

(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?

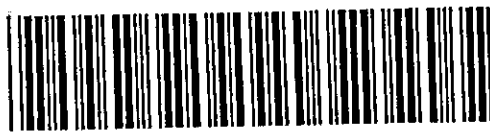
PSLV (Polar)

GSLV (Geo-syn)

→ Uses <u>solid & liquid propellant engine</u>. → Used for <u>lower payloads</u> $\rightarrow$ 1500 kg. & <u>low earth orbits (LEO)</u> → In <u>polar orbits</u>.	→ In addition it uses <u>cryogenic engine</u> in last stage. → Puts satellites in <u>geo-stationary</u> orbits with high payloads $\rightarrow$ 3000-3500 kg.
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1.25(One $\frac{1}{4}$)

(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।

Five medicinal benefits of Giloy / Guduchi -

- ① It improves digestion & cures constipation.
- ② It is a great immunity booster.
- ③ It contains the unwanted bacterial growth in the stomach particularly.
- ④ It cleanses skin from impurities and maintains good balance of salt in the body.
- ⑤ It is a great antacid and controls the instance of inflammation.

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

क्रिप्टोकॉरेंसी क्या है? इसके फायदे और नुकसान क्या हैं?

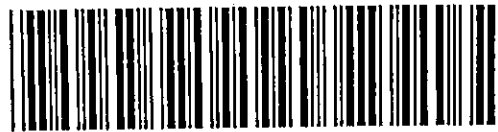
Cryptocurrency is a type of decentralised, digital currency. It is not a fiat money and have intangible existence. e.g. Bitcoin, Ethereum.

- Advantages**
- ① Decentralised thus a person can invest without ~~foundation~~ ^{without foundation}.
 - ② Cryptography based, ensures security & anonymity.
 - ③ Varied portfolios of investment for a person to undertake.

2(Two)
(Q.Unit-II-B-6)

1.5(One½)
(Q.Unit-II-B-7)

0.5(Zero½)
(Q.Unit-II-B-7)



- (4) No cost for its physical upkeep & printing.
- (5) Flexibility in trade payments & other transactions.
- (1) Disadvantage (1) Anonymous thus used for illegal activities.
- (2) Volatile nature as have no regulatory authority.
- (3) Vulnerable youth (4) Risk of frauds (5) Privacy issues
- (6) Hacking & embezzlement.

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-G. $\Rightarrow$ only voice calls, Analogous signals.
- 2-G. $\Rightarrow$ voice + GPRS (limited), Digital signals.
- 3-G. $\Rightarrow$ ~~Not~~ ^{EDGE}, high internet speed; Multimedia devices.
- 4-G. $\Rightarrow$ LTE/VoLTE, use of simultaneous bands for voice over internet, speeds upto 10 Gbps.
- 5-G. $\Rightarrow$ It is state of the art service with high data speed in tune of 100 Gbps. It uses and integrates devices with Internet of things, Artificial intelligence & Augmented reality. It is advancement of 4G with revolutionary applications.

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।

- MSS $\Rightarrow$ It is the combined system of missiles which comprises of missiles which has strategic value (which can deliver nuclear warheads).

1 (One)

(Q. Unit-II-B-7)

0.5 (Zero 1/2)

(Q. Unit-II-B-8)



In India such missiles are Agni, Prithvi, Aganika (K-15) & Brahmos.

Ammunition laboratories which handle these system makes a MSS cluster.

eg. ~~DRDO~~, ISRO, BARC, Ahmedabad.

Centre of nuclear application, KAMANI etc.

→ These laboratories carries out research in nuclear areas.

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) It is the property of Catenation. It is possible because carbon makes covalent bonds.

$$\text{H}-\underset{\text{H}}{\overset{\text{H}}{\text{C}}}-\underset{\text{H}}{\overset{\text{H}}{\text{C}}}-\underset{\text{H}}{\overset{\text{H}}{\text{C}}}-\underset{\text{H}}{\overset{\text{H}}{\text{C}}}-\underset{\text{H}}{\overset{\text{H}}{\text{C}}}-\text{H}$$

$$\text{C} \begin{array}{c} \vdots \\ \vdots \end{array} \text{C} \begin{array}{c} \vdots \\ \vdots \end{array}$$

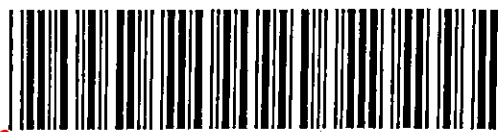
↓
 covalent bond.

0.25(Zero 1/4)

(Q. Unit-II-B-9)

1(One)

(Q. Unit-II-C-10)



③ Domestic application ⇒ ① coal used as energy source.

② Pencil (graphite) ③ Diamond as ornaments.

④ Plastics are essential part of life (carbon polymers)

⑤ steel utensils and rubber products. ⑥ Sweetner

Industrial ① As energy source (coal)

② As coking agent- ③ Cement-manufacturing.

④ As a reducing agent- ⑤ Graphite as moderator in nuclear fission. ⑥ Polymers & plastics.

⑦ Diamond as cutting tool.

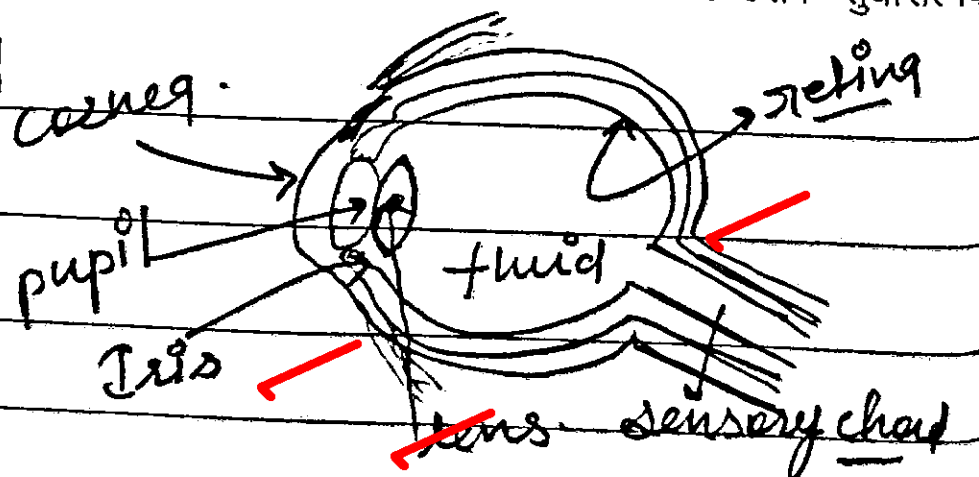
⑧ Artificial sweetner ⇒ ① Saccharine
② Table sugar.

⑨ Food preservatives ⇒ ① Nitrogen gas
② Salt.

⑩ Zinc ores ⇒ ① ZnO_2
② Galena

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 सुधारात्मक उपाय की व्याख्या करें।

human eye takes in light and after refraction from lens it makes image at retina.



0.5 (Zero 1/2)

(Q. Unit-II-C-10)

1 (One)

(Q. Unit-II-C-10)

1 (One)

(Q. Unit-II-C-10)

1 (One)

(Q. Unit-II-C-10)

0 (Zero)

(Q. Unit-II-C-10)

0.5 (Zero 1/2)

(Q. Unit-II-C-11)

1 (One)

(Q. Unit-II-C-11)

0.25 (Zero 1/4)

(Q. Unit-II-C-11)



Cornea $\Rightarrow$ outermost-visible bulb, ^{connective} ~~corneal~~ tissue

Iris $\Rightarrow$ entry point of light - & part of pupil. It adjusts according to availability of light -

lens $\Rightarrow$ Biconvex, It contracts light and makes an inverted image at retina.

Retina $\Rightarrow$ Photo-sensitive surface where image (inverted) is formed.

Sensory chord $\Rightarrow$ Sends signals to mind from retina.

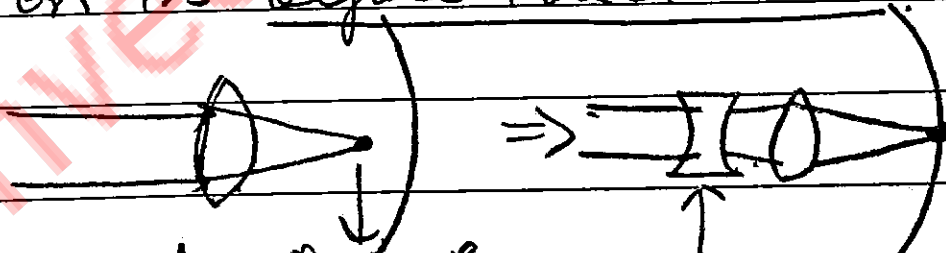
Humour $\Rightarrow$ maintains pressure in the bulb through release of fluid time to time. keeps moisture.

Nearsightedness

$\rightarrow$ far objects are not visible. ~~the~~ Negative number

$\rightarrow$ Image formation is ^{clearly} before the retina.

Cure



$\Rightarrow$ Concave lens is used. Image formation before. concave lens to form image on retina.

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?

RT-PCR $\Rightarrow$ Real time ~~polymerase~~ chain reaction.

This diagnostic test works on the principle of taking out RNA strand from the ~~ps~~ testing specimen. Then it is subjected

4(Four)
(Q.Unit-II-C-11)

0.5(Zero½)
(Q.Unit-II-C-11)

2.5(Two½)
(Q.Unit-II-C-11)

0.5(Zero½)
(Q.Unit-II-C-12)

0.5(Zero½)
(Q.Unit-II-C-12)

1(One)
(Q.Unit-II-C-12)



to polymerase chain reaction to make duplicate copies of itself. These duplicate copies are then analysed to make conclusion about availability of pathogens.

Process :- ① First RNA is cut from the desired location with the help of scissors (molecular).
② Then it is placed in an environment for chain reaction.
③ Lastly it is analysed and matched to make conclusions.

Ct-value $\Rightarrow$ It is the value of presence of antigen proteins on the RNA strand taken for testing.

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 | |

① Homi Jehangir Bhabha $\Rightarrow$ He was the pioneer of nuclear energy in India. Aka Father of nuclear energy. He established Department of nuclear energy. He was a nuclear physicist.

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

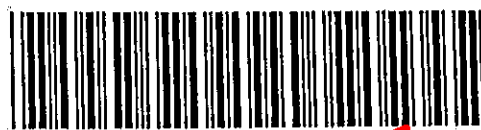
(Q. Unit-II-C-12)

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

(Q. Unit-II-C-12)

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

(Q. Unit-II-C-13)



His efforts led to research in fundamental sciences. He was fellow royal sciences academy.

② Lis Viresvaraya:- He was an engineer. In his memory we celebrate National engineers day. He pioneered many civil engineering concepts like sluice gates, dams management, Bridges etc.

③ Satyendra Nath Bose:- He is a science nobel prize winner. He did work in applied physics. He discovered a new sub-atomic particle which was later named as Bose particle and a new state of matter as Bose-Einstein condensate.

④ Meghnad Saha:- He was a mathematician who did research on numbers theory & integrals.

⑤ Har Gobind Kharana:- He was a physicist who did ground breaking work in the areas of path fundamental physical & nuclear physics.

Unit - III
(यूनिट - III)

Part - A
भाग - अ

(65 Marks)
(65 अंक)

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।

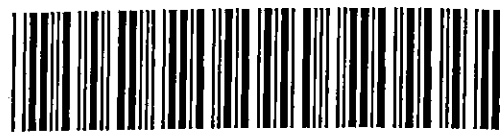
Time period $\Rightarrow$ 2.3 billion to 70 Billion years ago.

0.5 (Zero½)
(Q. Unit-II-C-13)

1.5 (One½)
(Q. Unit-II-C-13)

0 (Zero)
(Q. Unit-II-C-13)

0 (Zero)
(Q. Unit-II-C-13)



x

0 (Zero)

(Q. Unit-III-A-1)

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

Sial is the crust part of earth.

It consists of silica and aluminium.

It is main part of sand & surface minerals.

Its density is lower than Siing
2.7 kg/cm³

1.5 (One½)

(Q. Unit-III-A-2)

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

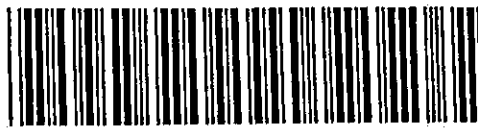
Shivaliks is a fold mountain and youngest of Himalayan system. It is formed due to N-W movement of Indian plate & contraction of Tethys sea sediments.

0.5 (Zero½)

(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।

① Harishchandra ② Mairikala
③ Milgiri ④ Janadi ⑤ Sheneray
⑥ Palghat



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

udaipur $\Rightarrow$ Natha ki pal, thur hunder.
Bhilwara $\Rightarrow$ kesarpura Angucha.
Debari, kho-dariba.

0.5(Zero½)

(Q.Unit-III-A-4)

0 (Zero)

(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.

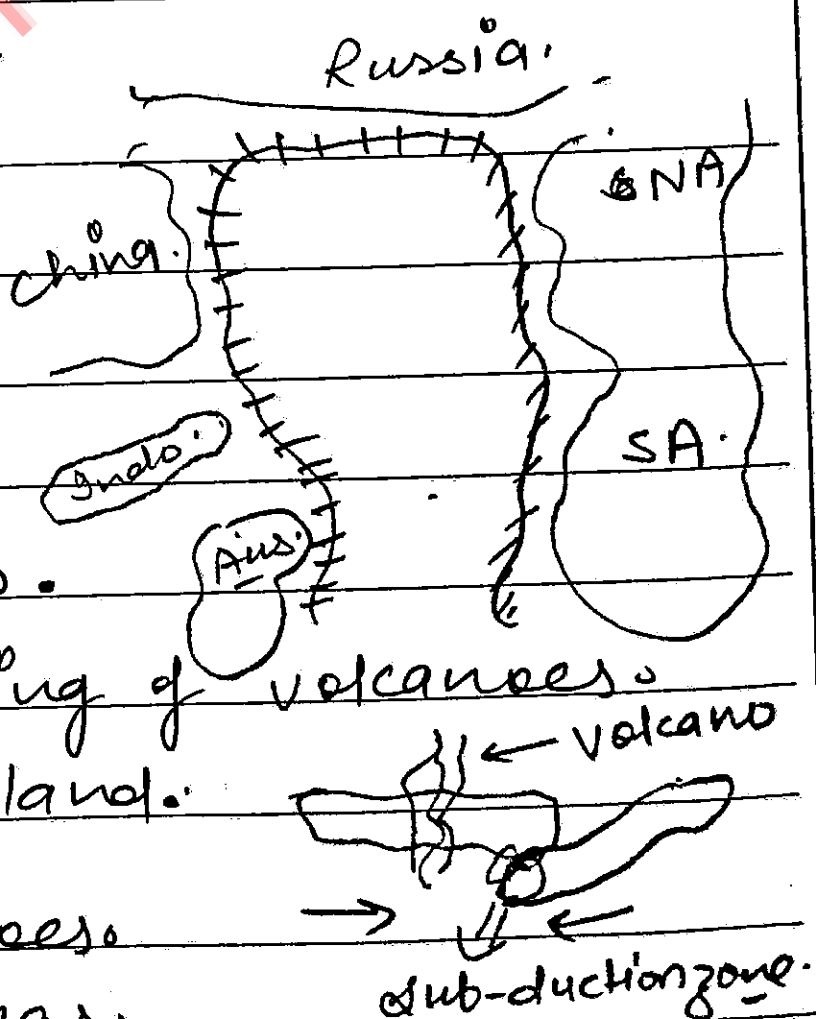
नोट : सभी प्रश्नों के उत्तर दें। निम्न प्रश्नों का उत्तर 50-50 शब्दों में दें। प्रत्येक प्रश्न के 5 अंक निर्धारित हैं।

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

It is also known as
ring of fire. It is a
convergent boundary
subduction zone volcano.

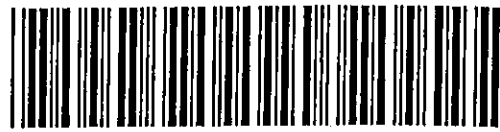
It is a continuous ring of volcanoes
surrounding the pacific island.

These are active volcanoes.
 $\rightarrow$ On the boundary it has.



1.5(One½)

(Q.Unit-III-B-6)



N & S America, Asia, China etc.

eg. Hawaii Volcano, Mount-Fuji etc.

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

Rocky mountain range is situated in Northern America. It has following features.

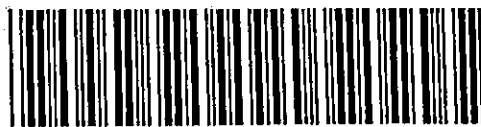
- ① It is a young fold mountain, steep slopes
- ② It is all along the western coast of NA
- ③ It works as a barrier for sea-winds and melts the snow on eastern side aka snow eater thus helping the wheat-cultivation.
- ④ There is orographic rainfall on western slopes.
- ⑤ It is a great-source of minerals eg. Coal & Iron.

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

Geographical features are as following —

- ① Found in western ghats & North-east
- ② Rainfall in excess of 200cm+
- ③ These are places of high biodiversity thus Western ghat is declared as Hotspot.
- ④ There is great diversity of Animals as well.

0.75(Zero³/₄)
 (Q. Unit-III-B-7)



- (5) They are evergreen all year round.
- (6) Great source of wood (sesame, chandan) and rare medicinal plants.
- (7) helps in maintaining biological & geochemical balance.
- (8) purifies the air and streams.

1.5 (One½)

(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 :- It consists of 2 geographical regions
(i) Deccan plateau region $\Rightarrow$ ~~chappan~~ Black soil
(ii) Vindhyan scarp land $\Rightarrow$ ~~Black & Red soil~~
It's geographical reach is in ~~Kota, Jhalawar,~~
~~Baran, Pratapgarh~~. Due to black soil, it grows
cotton & sugarcane in abundance.

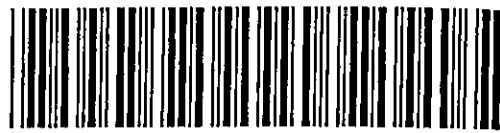
1.75 (One¾)

(Q. Unit-III-B-9)

Other names $\Rightarrow$ Horse shoe hills, ~~Bundi hills~~,
Rivers like ~~Chambal~~ & ~~Banas~~ flows through it ^{etc.}

10. Discuss the distribution of major metallic minerals of Rajasthan in brief.
राजस्थान में प्रमुख धात्विक खनिजों के वितरण की संक्षेप में विवेचना कीजिए।

- (1) Copper $\Rightarrow$ ~~Khetri~~, ~~Kho-dariba~~,
- (2) Iron $\Rightarrow$ ~~Merja-Danela~~, ~~Meemla Raisela~~.
- (3) Zinc $\Rightarrow$ ~~Nathra ki pal~~, ~~thun hunder~~, ~~Dariba~~,
~~Debari~~
- (4) Tungsten $\Rightarrow$ ~~Renant ki pahari~~ (Nagore)
- (5) Gold $\Rightarrow$ ~~Jagpura Bhukiya~~.



⑥ Silver $\Rightarrow$ Debari

⑦ Aluminium $\Rightarrow$ Kota & Bhilwara.

Rajasthan has Gondwana era Aravali mountain range which is treasure of metallic minerals.

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

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

South east-Asia is politically known as ASEAN (Association of South East-Asian nations).

It is a block of 10 countries consisting Myanmar, Singapore, Malaysia, Indonesia, Laos, Cambodia, Vietnam, Philippines, Brunei, Thailand.

Geopolitical problems faced are.

① Chinese Aggressiveness :- In South China sea China claims all of sea (80%) by way of 9-dash line. ASEAN too has competing claims over Spratly etc.

② USA-China Rivalry :- Both countries are super-powers and China is expanding whereas USA is trying to contain it militarily. It has lead to militarization & hostilities in the region.

③ Economic Rivalries :- Many countries like

3(Three)

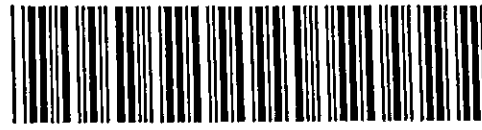
(Q. Unit-III-B-10)

1.5(One½)

(Q. Unit-III-C-11)

1(One)

(Q. Unit-III-C-11)



India, Japan, China, Eu are locked in battle for greater market-access of Asean countries.

④ AUKUS :- It is a new security arrangement in the Indo-Pacific by US, UK, Australia to contain China. It puts ASEAN into a tough spot.

⑤ Hongkong protest :- China is tightening its claim of sovereignty over Hongkong which led to protests and unstable in the region.

⑥ Islamic Radicalisation :- Countries like Indonesia and Malaysia are fighting terrorism and ISIS inspired modules in the region.

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

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

Rajasthan is blessed with non-conventional energy resources. It has potential in tune of 142 GW.

① Solar energy :- Raj ^{→ solar parks & solar clusters} has a desert area which ensures day long intense insolation. Acc. to solar energy policy, 2015 target has been set to use private expertise to scale up projects. e.g. Bhadla park (largest), Fatehgadh, Jaisalmer.

② Wind energy :- It is another avenue where

1.5 (One½)
(Q. Unit-III-C-11)



Rajasthan has huge potential. It has wind turbines working in Barmer & Jaisalmer.

③ Biofuel :- In Biofuel policy, 2019 Rajasthan notified and incentivised. for crop cultivation of Jatropha, Ratnaji etc. to scale up. 2nd & 3rd generation biodiesel & ethanol. Rajasthan has also started blending of ~~ethanol~~ Biofuel with petrol & diesel.

④ Geothermal energy :- By harnessing the heat-entrapped in the earth from the fissures and natural waterfalls.

In Rajasthan there are potential areas in Aravalli.

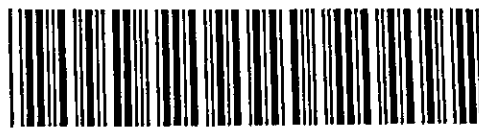
Thus we can see that Rajasthan has appropriate policy framework, vision and clearly defined targets to achieve its non-conventional energy goals.

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 :- These are the sites of geographical importance from the point of view of physical, geological and aesthetic importance.

3.5 (Three½)

(Q. Unit-III-C-12)



They are declared as such to preserve their scientific value and educational utility.

In ~~India~~ UNESCO started this concept and in India Geological survey of India (GSI) identifies & manages it.

Potential in Rajasthan - Rajasthan has great potential in terms of geo-heritage sites. A. present Rajasthan has 12 sites declared as geo-heritage. There are many more at proposal or appraisal stage. It has increased the tourism and scientific interest of people in these sites.

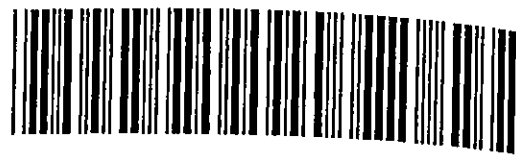
Some of them are

- ① Ramgarh crater (Baran)
- ② Fossil wood park (Jaisalmer)
- ③ Jhamar kotda ~~④ Dariba~~ ⑤ Sandstone sites of Jodhpur.
- ⑥ Bijgunda etc.

Thus it is important to enhance the educational value of geographical sites to maintain people's interest, promote tourism & ensure sustainable development.

1(One)
(Q. Unit-III-C-13)

1.5(One½)
(Q. Unit-III-C-13)



SPACE FOR ROUGH WORK



Armvveer Singh Rank 15

Karmveer Singh Rank 15



Karmveer Singh Rank 15