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Part – 1 / भाग – 1

Marks – 30 / अंक – 30

Note: There are 15 questions in this part. All questions are compulsory. Each question carries 02 marks.

1. वैज्ञानिक तथा तत्त्व में पराभुक्तिक भिन्नता क्या है?
   Differentiate between compound and element by definition.
   [उत्तर सीमा : 20 शब्द]
   [Answer Limit : 20 words]

2. मानव शरीर में निकोटिन से होने वाले मुख्य प्रभाव क्या हैं?
   Describe the prominent effects of nicotine in the human body.
   [उत्तर सीमा : 20 शब्द]
   [Answer Limit : 20 words]

3. लोहे में जंग लगता है परंतु अल्युमिनियम में नहीं, ऐसा क्यों?
   Rusting occurs in Iron but not in Aluminium, explain why?
   [उत्तर सीमा : 20 शब्द]
   [Answer Limit : 20 words]

4. जैनिकल मॉडिफाइड फसलें क्या हैं? किस बहुराष्ट्रीय कंपनी ने बी.टी. कपा की भारत में शुरूआत की?
   What are genetically modified crops? Which Multi National Company Introduced Bt-Cotton in India?
   [उत्तर सीमा : 20 शब्द]
   [Answer Limit : 20 words]

5. उस ट्रांजेसनिक पौधे (पौधों) एवं जीन (Gene) का नाम बताये जो पारा (Hg) को डिटेक्टिव करते हैं।
   Name the transgenic plant(s) and the genes used for mercury detoxification.
   [उत्तर सीमा : 20 शब्द]
   [Answer Limit : 20 words]

6. सामान्यतः: एक वयस्क पुरुष एवं महिला में लाल रक्त कणिकाओं की संख्या प्रति घन मिलीमीटर में कितनी होती है तथा इसकी जीवन अवधि, लगभग कितनी होती है?
   What is generally the number of red blood corpuscles per cubic millimetre of blood in an adult man and woman and what is the approximate life span of Red Blood Corpuscles?
   [उत्तर सीमा : 20 शब्द]
   [Answer Limit : 20 words]

7. पेय जल में नाइट्रेट की अधिक मात्रा से क्या प्रभाव पड़ता है?
   What is the effect of excess nitrates in drinking water?
   [उत्तर सीमा : 20 शब्द]
   [Answer Limit : 20 words]

8. जैव-विविधता की परीक्षण लिखिए।
   Define Biodiversity.
   [उत्तर सीमा : 20 शब्द]
   [Answer Limit : 20 words]

9. सम्पूर्ण विकास क्या है?
   What is sustainable development?
   [उत्तर सीमा : 20 शब्द]
   [Answer Limit : 20 words]
10. Calculate the escape velocity from the moon. The mass of the moon $= 7.4 \times 10^{22}$ kg and radius of moon = 1740 kms.

[Answer Limit: 20 words]

11. What do you understand by Remote Sensing?

[Answer Limit: 20 words]

12. Define Cloud Burst.

[Answer Limit: 20 words]

13. What is “Epicenter”?

[Answer Limit: 20 words]

14. Differentiate between Graphical User Interface (GUI) and Command User Interface (CUI).

[Answer Limit: 20 words]

15. What is mail-merge option in MS-Word?

[Answer Limit: 20 words]

Part - 2 / भाग - 2

Marks = 50 / अंक = 50

Note: There are 10 questions in this part. All questions are compulsory. Each question carries 05 marks.

16. Describe the reason for difference in the crystallinity between “Natural Rubber” and “Gutta-Percha”.

[Answer Limit: 50 words]

17. What is Borosilicate glass? Describe its properties and applications.

[Answer Limit: 50 words]

18. What is patent? What are major requirements for grant of a patent?

[Answer Limit: 50 words]
19. **Write the full form of IUCN. In which year the Parliament of India enacted the Wild Life Protection Act and what was its purpose?**

Answer Limit: 50 words

20. **Suggest some measures to control noise pollution.**

Answer Limit: 50 words

21. **Differentiate between a National Park and a Sanctuary.**

Answer Limit: 50 words

22. **Give a brief account of Indian Remote Sensing System.**

Answer Limit: 50 words

23. **What is the difference between infrasonic and ultrasonic waves?**

Answer Limit: 50 words

24. **What is the major difference between Natural hazards and Natural disasters?**

Answer Limit: 50 words

25. **What are the challenges to internal security through communication network?**

Answer Limit: 50 words

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**Part – 3 / भाग – 3**

**Marks – 40 / अंक – 40**

**Note:** There are 07 questions in this part. Candidate should attempt any 05 questions. Each question carries 08 marks.

26. **Describe the following:**

(i) Benedict’s test, reducing sugars.

(ii) Drug, medicine and chemotherapy.

Answer Limit: 125 words

27. **What is gene therapy and how does it differ from supportive therapy?**

Answer Limit: 125 words
28. What are chromosomes? Describe the types of the chromosomes on the basis of number and position of centromere.

29. Describe Clean Development Mechanism (CDM).

30. C (diamond), Si and Ge have same lattice structure, but why C is an insulator and Si and Ge are intrinsic semiconductors, explain.

31. Explain Flood Early Warning System.

32. What are the advantages of DBMS over typical file processing system? Also define the functions of a DBA.

33. Explain plastics. Distinguish between thermoplastics and thermosetting plastics with example.

34. (a) Describe the removal of greasy dirt by soap.
(b) What is absolute alcohol? Explain how it can be obtained from rectified spirit by fractional distillation.

35. What is menstrual cycle? Write brief note on its various phases and hormonal control.
36. Explain the impact of solid waste on our environment and show how it can be managed.

37. What is the difference between soft and hard X-Rays? Write down the uses of X-rays in five different areas.

38. Explain the types of drought.

39. Differentiate between LAN, MAN and WAN. Give example of each. Also discuss topologies and devices used in computer network.