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1M4A24242 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fourth Semester Integrated M.Sc Geology Degree Examination, April 2024

CHE4IC02 – Allied Course II : Physical & Inorganic Chemistry

(2021 Admission onwards)

Time: 2 ½ hours Max. Marks : 80

PART – A
All questions can be attended
Each question carries Two mark.
Ceiling -25 Marks

1. Name two isotopes which are used as tracers.
2. What are isotones?
3. What is Group displacement law?
4. Which meal is present in the active site of vitamin B_{12}?
5. Give two examples for zinc containing enzymes
6. What is tyndall effect?
7. What is meant by gold number?
8. Give an example of 2D nanomaterial.
9. What is a Chromophore?
10. What is a zwitter ion?
11. Name the purine bases found in DNA
12. What is meant by Red shift?
13. Give the selection rules for rotational spectroscopy.
14. What is eutrophication?
15. What is meant by flash point?

PART – B

All questions can be attended
Each question carries Five marks.
Ceiling -35 Marks

16. Explain the mechanism and action of sodium potassium pump.
17. Explain the oxygen transport by haemoglobin.
18. Discuss DNA fingerprinting and its applications.
19. Explain different types of drugs.
20. Write a note on application of Nanomaterials.
21. Describe the principle of Gas chromatography.
22. Write a note on nuclear forces.
23. Explain the NMR spectrum of ethanol.

PART - C

Answer any *two* questions.
Each question carries Ten marks.

24. Explain the different structural levels of protein
25. Write a note on (a) the principles of green chemistry (b) Artificial sweeteners.
26. Discuss the purification of colloids.
27. Discuss the causes and effects of air pollution

2 x 10 = 20 Marks

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1M4A24240 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fourth Semester Integrated M.Sc Geology Degree Examination, April 2024

GLO4A13-NATURAL RESOURCE MANAGEMENT

(2020 Admission onwards)

Time: 2 ½ hours Max. Marks: 80

(Draw neat sketches, wherever necessary)

PART – A

Answer ***all*** questions.

Each question carries **Two** mark.

Ceiling -25 Marks

1. What is the importance of natural resources?
2. Define stock natural resources.
3. What is sustainable utilization?
4. What do you meant by problem soil?
5. Define the terms, river bank and river bed.
6. Difference between Rapid and Waterfall.
7. Define aqueducts
8. How are lakes classified based on their nutrient levels?
9. What is estuary?How do marine influences, such as tides and waves, impact estuaries?
10. Define Tropical rainforest.
11. What do you mean by Ecological Footprint?
12. What is neritic zone?
13. What is forest management?
14. How can be reduced carbon footprint?
15. Define Fjord-type type estuary.

PART – B

Answer *all* questions.
Each question carries **Five** marks.
Ceiling -35 Marks

16. Discuss the various ways in which natural resources are threatened by human activities and environmental factors.
17. Explain the role of sustainable practices in the conservation of natural resources.
18. Write about EcologicalSustainability.
19. Give an explanatory note on land utilization.
20. What is a lake? Write a note on major types of lakes.
21. Give an account on methods of solid waste disposal.
22. Give note on renewable and non-renewable sources of energy.
23. Write a note on Bio-prospecting and bio-prospecting derived Resources.

PART - C

Answer any *two* questions.
Each question carries **Ten** marks.

24. Give a detailed account on Wetlands, types of wetlands and threats to wetland ecosystem. Add short note on Ramsar Convention and its importance.
25. What is EIA and why is it important in environmental management? What are the key stages involved in the process of EIA?
26. How do national policies and regulations align with international agreements in the context of natural resource management and conservation?
27. What are the specific applications of remote sensing and GIS in monitoring and assessing natural resources?

2 x 10 = 20 Marks

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fourth Semester Integrated M.Sc Geology Degree Examination, April 2024

GLO4A14 - INTELLECTUAL PROPERTY RIGHTS

(2020 Admission onwards)

Time: 2 ½ hours Max. Marks: 80

(Draw neat sketches, wherever necessary)

PART – A

Answer ***all*** questions.

Each question carries **Two** mark.

Ceiling -25 Marks

1. What is Berne Convention for the protection of literary and Artistic Works?
2. Discuss in detail the moral and economic rights of authors?
3. What is WIPO?
4. What are intellectual property rights?
5. What is meant by patent of addition?
6. What kind of industrial design can be registered?
7. What is a trade secret?
8. What are extant plant varieties?
9. Define geographical indicators?
10. What is the position of an unregistered trade mark under the Trade Marks Act, 1999?
11. Give any four salient features of Geographical Indications of Goods (Registration & Protection) Act, 1999?
12. What is the duration of design registration? Can it be extended?
13. What is a patent document?
14. What is UPOV?
15. Give the EC directive definition of microorganisms?

PART – B

Answer *all* questions.
Each question carries **Five** marks.
Ceiling -35 Marks

16. What is TRIPS Agreement? Outline the main three features of the TRIPS Agreement.
17. Briefly explain the historical development of IPR in India and the needs of IPR?
18. Briefly explain the different types of patent application?
19. What are the types of works protected by copyright? How performer's right is different from copyright? What are the rights covered by the copyright?
20. Briefly explain Trademark Act 1999?
21. Give four examples of the Indian products that received GI tags? Is registration of a geographical indication compulsory and how does it help the applicant? How long the registration of geographical indication is valid?
22. What are the main requirements for the registration of an industrial design? Give a short note on Design Act 2000?
23. Explain plant Breeder's Right and PPVFRA, 2001?

PART - C

Answer any *two* questions.
Each question carries **Ten** marks.

24. Describe the parts of a patent application, procedures of drafting and filing of a patent? What are the different patents searches using the patent documentation?
25. Explain the patenting of microorganismswith an example of a case study? Brief Budapest treaty and TRIP in biotechnology?
26. Explain Industrial designs? How can be it protected? What are the benefits of IPR protection? Draw the flow chart of filing the application to the acceptance?
27. Define trademark and their functions? What are the different types of trademarks? Explain the registration process of trademarks?

2 x 10 = 20 Marks

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1M4A24239 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fourth Semester Integrated M.Sc Geology Degree Examination, April 2024

GLO4IB04 – OPTICAL AND DESCRIPTIVE MINERALOGY

(2022 Admission onwards)

Time: 2 hours Max. Marks: 60

(Draw neat sketches, wherever necessary)

PART – A

Answer ***all*** questions.

Each question carries **Two** mark.

Ceiling -20 Marks

1. Explain about the nature of light.
2. Write the characteristic properties of polarized light?
3. What is called optic axis?
4. Describe Snell's law.
5. Give some uses of *mica* mineral
6. Write a short note on chemistry of scapolite mineral.
7. What do you mean by optically Positive and negative crystals?
8. Give a short note onbirefringence and relief of a mineral.
9. Comment on the mode of occurrence of zircon.
10. Describe zoning in crystals.
11. List out the optical properties of Beryl.
12. What is extinction position in an optical microscope?

PART – B

Answer *all* questions.

Each question carries **Five** marks.

Ceiling -30 Marks

13. Explain various parts of optical microscope and comment how light interact with each parts.
14. Discuss various methods to produce plane polarized light.
15. Distinguish uniaxial mineral and biaxial mineral. Also, give some insight on uniaxial indicatrix figure.
16. How to determine the optic sign of a uniaxial mineral using accessory plate?
17. Write a note on structure, chemistry and optical properties of *Aluminium silicates* mineral.
18. Discuss the structure, varieties,chemical composition and occurrence of *chlorite group*of Minerals
19. Discuss briefly on the construction of Nicol prism.

PART - C

Answer any ***One*** question.

20. Give an account on structure, chemistry, properties, mode of occurrence and uses of *olivine group* minerals.
21. Discuss the structure, classification, physical and optical properties of *Feldspar group* Minerals. Give their chemical composition and mode of occurrence.

1 x 10 = 10 Marks

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