1M3N23131

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Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester Integrated M.Sc Geology Degree Examination, November 2023

GLO3A11- BIODIVERSITY – SCOPE AND RELEVANCE

(2022 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. State the concept of Biodiversity.
2. What factors make a region a "hottest hotspot" in terms of biodiversity?
3. What is endemic species?
4. Briefly explain magnitude of microbial diversity.
5. What is agrobiodiversity?
6. Write about seed bank
7. What is species abundance and species richness?
8. What are the ethical and aesthetical values of Biodiversity?
9. What is called monitoring of biodiversity?
10. Why wild relatives of cultivated plants and domesticated animals are important?
11. What is canopy fogging?
12. Explain quadrants sampling.
13. What are the characteristics of national parks?
14. What is microbiological culture?
15. Define phenological changes.

PART – B

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

16. Explain the processes responsible for species extinction.
17. Discuss loss in Biodiversity.
18. Write about the hotspots of India
19. What are the applications of Bioprospecting?
20. Write a short note on Species Biodiversity.
21. Briefly write about In-situ conservation of Biodiversity
22. How the IUCN Red List classifies the species?
23. Describe the importance of inventorying and monitoring of biodiversity.

PART - C

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

24. Explain the impact of climate change on different ecosystem.
25. Discuss about the Plant Biodiversity.
26. Why India is a mega biodiversity nation?
27. Write a short note on Genetic and ecosystem diversity.

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester Integrated M.Sc Geology Degree Examination, November 2023

GLO3A12 - RESEARCH METHODOLOGY

(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. How can methodology and method be differentiated?
2. How to find cases of plagiarism?
3. What is a database? Give examples for earth science databases.
4. Describe the role of ethics in research.
5. Why would you select a quantitative research methodology over other research methodologies?
6. What do you meant by primary source and secondary source?
7. What is a newsletter?
8. What are predatory journals?
9. What are the main parts that comprise a table?
10. List out the advantages and disadvantages of SPSS statistics.
11. Distinguish observational and experimental research.
12. Describe article proofs?
13. What are ISSN and ISBN?
14. What is the importance of the impact factor?
15. How can conference proceedings be a good source of literature?

PART – B

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

16. What are the different types of journal articles and how do they contribute to the body of research literature?
17. How do you think research objectives can be improved or made more effective?
18. What are the key steps involved in developing an effective work plan? Give an example.
19. What are the different types of research methodologies? Explain the various techniques used to collect factual data.
20. What are some key factors that one should consider when selecting statistics software for data analysis?
21. How can hypothesis, theory, and law be distinguished, and what are some suitable examples that illustrate these distinctions?
22. What are the different types of plagiarism that can occur in research, and how do they differ from each other?
23. What is the peer-review process and how does it ensure the quality and credibility of published research?

PART - C

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

24. Discuss the components and guidelines for preparing manuscripts for journal publication. What are the essential elements that should be included in a manuscript, and how should they be structured?
25. Discuss the main components of a thesis structure and their significance in presenting a comprehensive research study.
26. Explore the criteria and considerations involved in selecting appropriate journals for publishing research articles. How can researchers identify reputable and suitable journals for their work?
27. Why is it crucial to carefully select a research topic and plan your research effectively? Discuss the key factors involved in choosing a right topic and planning a research.

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester Integrated M.Sc Geology Degree Examination, November 2023

GL03IB03 – GEOMORPHOLOGY

(2020 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. What is meant by a soil profile?
2. Differentiate consequent and subsequent streams?
3. What is entrenched meanders?
4. What is a submarine canyon?
5. Write the difference between ria coasts and fiord coasts?
6. Write about glacial ages?
7. How the trenches are formed?
8. What is terra rosa?
9. Write shortly about the transportation mechanisms of wind?
10. Write about different types of currents causes the formation of coastal landforms?
11. What is stylolite?
12. What are the factors affects weathering?

PART – B

Answer *all* questions.
Each question carries Five marks.
Ceiling -30 Marks

13. What is mass wasting? Explain the controlling factors of mass wasting and types of slow flowage?
14. What are different types of drainage patterns and write about their significance?
15. Explain the formation of deserts?
16. Write a short note aboutaquifers, artesian wells, geyser and springs?
17. What are shorelines? Explain Johnson's classification of shorelines?
18. Briefly explain the parts and applications of Brunton compass and clinometer?
19. Explain the types and origin of coral reefs?

PART - C

Answer any*one* question.
Each question carries Ten marks

20. Explain the erosional and depositional landforms formed by fluvial action?
21. Describe erosional and depositional landforms formed by glacial action?

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester Integrated M.Sc Geology Degree Examination, November 2023

PHY3IC02 - Optics & Spectroscopy, Modern Physics, Electronics and Numerical Method

(2020 Admission onwards)

Time: 2 ½ hours

Max. Marks: 80

PART – A

Answer *all* questions.

Each question carries Two marks.

1. What is meant by least square method of curve fitting?
2. What are universal gates and why are they called so?
3. Obtain the relation between phase difference and path difference.
4. Write down Schrodinger's time dependent equation and explain the symbols.
5. State de-Morgan's theorem?
6. What are α, β and γ particles?
7. What is Rayleigh criterion for resolution?
8. Write Taylor series expansion of Cos x.
9. Define Eigen value and Eigen function.
10. What is meant by work function?
11. Write short note on nuclear waste disposal.
12. Using a suitable figure, discuss the phenomenon of stimulated emission.
13. What is polarizing angle and how is it related to refractive index of the medium?
14. Why CE configuration is preferred to other configurations.
15. What are filter circuits? Explain capacitor filter and π-filter.

Ceiling - 25 Marks

PART – B

Answer *all* questions.
Each question carries Five marks.

16. Define current amplification factor? Obtain the relation between α, β and γ?
17. One gram of 226_{Ra} has an activity of nearly 1 Curie. Determine the half life of 226_{Ra}.
18. Define wave function. Give its significance and write conditions for a wave function to be well behaved.
19. Calculate the wave length associated with electrons whose speed is 0.01 the speed of light.
20. Explain the sign to noise ratio.
21. Differentiate the resolving power and dispersive power?
22. Discuss the method of solving differential equations of physical problems using Euler method.
23. Calculate the stopping potential when a radiation of 600 nm wavelength is incident on a photosensitive surface of work function 1.3 eV?

Ceiling - 35 Marks

PART - C

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

24. Explain the plane film interference for both a) Normal and b) Oblique incidence of light?
25. Describe the principle and working of a bridge rectifier. Derive the expressions for efficiency and ripple factor.
26. Explain the principle, construction, and working of a semiconductor laser.
27. a) Obtain Newton's Raphson formula.
    b) Solve $x^2 - 7 = 0$ by Newton – Raphson method.

2 x 10 = 20 Mark