R1077	Sub. Code
	548201

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Second Semester

Integrated Marine Biology

CHEMICAL OCEANOGRAPHY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. The total salt content of seawater is on average ———— ppt (CO1, K2)

   (a) 37 (b) 34

   (c) 36 (d) 35

2. Seawater also contains dissolved gases and ———— (CO1, K2)

   (a) Carbon dioxide (b) Nutrients

   (c) Nitrogen (d) Water

3. The pH of seawater is ———— (CO2, K2)

   (a) 82 (b) 8.6

   (c) 7.9 (d) 8.1

4. ———————— bring atmospheric carbon dioxide (C02) into the ocean interior and distribute it through the oceans. (CO2, K2)

(a) Nitrogen cycle (b) Carbon cycle

(c) Silicon (d) Phosphorus

5. ———————— in seawater exhibits photic zone depletion and deep-water (CO3, K2)

(a) Nickel (b) Copper

(c) Zinc (d) Cadmium

6. The ocean and the ———————— form a complex coupled system, exchanging gases, water (and water vapour), particles, momentum, and energy at the air-sea interface. (CO3, K2)

(a) Atmosphere (b) Carbon dioxide

(c) Nitrogen (d) Methane

7. The most abundant naturally occurring gas is ———————— (CO4, K4)

(a) Nitrogen (b) oxygen

(c) Argon (d) Atmosphere

8. Ecological process refers to the interaction between the living and non-living material in an ———————— (CO4, K4)

(a) Plants (b) Animals

(c) Water (d) Ecosystem

9. Trace elements that occur naturally in the ———————— (CO5, K2)

(a) Earth's crust (b) Fluoride

(c) Arsenic (d) Boron

10. Trace elements are actively cycled in seawater are essential components for ———————— (CO5, K2)

(a) Aquatic life (b) Terrestrial life

(c) Marine life (d) Hydrography

Part B ($5 \times 5 = 25$)

Answer **all** questions not more than 500 words each.

11. (a) Explain the Chemical properties of seawater. (CO1, K2)

Or

(b) Write a detailed note on the dissolved inorganic substances. (CO1, K2)

12. (a) Give an importance of the carbon dioxide CO_2 cycle. (CO2, K2)

Or

(b) Explain the annual CO_2 emissions. (CO2, K2)

13. (a) Write a note on the density of seawater and pressure. (CO3, K2)

Or

(b) Explain the factors affecting solubility. (CO3, K2)

14. (a) What is the salinity distribution in Seawater? (CO4, K4)

Or

(b) Explain the remineralization reaction. (CO4, K4)

15. (a) Give a detailed account on nitrogen properties and reaction. (CO5, K2)

Or

(b) Write the occurrence and distribution of nitrogen. (CO5, K2)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Give an elaborate account on the Chemical evolution of seawater. (CO1, K2)

Or

(b) Explain the analytical chemistry of seawater. (CO1, K2)

17. (a) Explain in detail about the carbondioxide and regulation of respiration. (CO2, K2)

Or

(b) Write a detailed account of Temperature distribution in ocean. (CO2, K2)

18. (a) Describe in detail on the factors affecting solubility. (CO3, K2)

Or

(b) Explain in detail about Anoxic causes and effects. (CO3, K2)

19. (a) Give an elaborate account on the carbon cycle. (CO4, K4)

Or

(b) Explain the detailed account of the methods of BOD. (CO4, K4)

20. (a) Write a detailed account of Essential nutrients. (CO5, K2)

Or

(b) Write a detailed account on the ecological process on organic matter in ocean. (CO5, K2)

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R1078

Sub. Code
2MB2A1

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Second Semester

Integrated Marine Biology

Allied — GENERAL CHEMISTRY – II

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. Which of the following is an example of corrosion? (CO1, K2)

   (a) Rusting of iron

   (b) Tarnishing of silver

   (c) Liquefaction of ammonia

   (d) Rusting of iron and tarnishing of silver

2. Which of the following are used as explosives? (CO1, K2)

   (a) Mercuric acid

   (b) Nitroglycerin

   (c) Phosphorous trichloride

   (d) Graphite

3. Which of the following separation techniques is dependent on difference in volatility? (CO2, K3)

(a) Distillation

(b) Crystallization

(c) Magnetic separation

(d) Fractional crystallization

4. Crystallization exploits difference in which factors? (CO2, K3)

(a) Specific heat (b) Boiling point

(c) Melting point (d) Bubble point

5. Which component of fertilizer is used in stimulates early growth purpose? (CO3, K4)

(a) Phosphorus (b) Nitrogen

(c) Potassium (d) Oxygen

6. Which of the following fertilizers contains least percentage of nitrogen? (CO3, K4)

(a) Liquid Ammonia

(b) Urea

(c) Ammonium Phosphate

(d) Ammonium Sulphate

7. The most commonly used pesticide taxaphene is (CO4, K2)

(a) Carbamate

(b) Organophosphate

(c) Organochlorine

(d) Antibiotic

8. Which of the following is an example of a Natural pesticide? (CO4, K2)

(a) DDT (b) Heptachlor

(c) Chlordane (d) Rotenone

9. Which of the following blood group is consider a universal donor? (CO5, K4)

(a) A (b) B

(c) AB (d) O

10. The Antigens for AB,O and Rh blood group present on (CO5, K4)

(a) Plasma

(b) White blood cells

(c) Red blood cells

(d) Platlets

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Discuss briefly the manufacturing process of match's. (CO1, K2)

Or

(b) Discuss the manufacturing process in the bleaching and coloring of paper. (CO1, K2)

12. (a) How does Soxhlet extraction work? What are the advantages and disadvantages of the Soxhlet extractor? (CO2, K3)

Or

(b) Account the following (CO2, K3)

(i) Fractional distillation

(ii) Thin layer chromatography.

13. (a) What are the different types of fertilizer? Explain. (CO3, K4)

Or

(b) Briefly explain about biofertilizer. (CO3, K4)

14. (a) Explain about the Insecticides. (CO4, K2)

(i) Nicotine

(ii) Pyrethrum.

Or

(b) Discuss about Boredezus mixture. (CO4, K2)

15. (a) Explain the preparation and uses of Methyl orange and Phenopthalien dyes. (CO5, K4)

Or

(b) How will you estimate of glugose in urine? (CO5, K4)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Write short notes on (CO1, K2)

(i) Corrosion inhibitor

(ii) Pyrotechnics.

Or

(b) Discuss about the bleaching and colouring process of paper. (CO1, K2)

17. (a) Describe the following (CO2, K3)

(i) Column chromatography

(ii) Choice of desiccant.

Or

(b) Illustrate about the principles, methods and application of Gas chromatography (CO2, K3)

18. (a) Discuss about the phosphate fertilizer on plant growth. (CO3, K4)

Or

(b) Discuss about the Potassium fertilizer on plant growth. (CO3, K4)

19. (a) Explain about the following (CO4, K2)

(i) D.D.T

(ii) Methylcarbamic acid derivatives.

Or

(b) Brief explain about the Inorganic pesticides of the Arsenical fluorides and Borates. (CO4, K2)

20. (a) Write brief note on (CO5, K4)

(i) Otto-witt theory of color

(ii) Indigo

(iii) Alizarin.

Or

(b) Describe about composition of blood, blood group and blood matching. (CO5, K4)

———————

R1076	Sub. Code
	92BPEL

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Second Semester

English

PROFESSIONAL ENGLISH FOR LIFE SCIENCES – II

(CBCS – 2020 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A $(10 \times 1 = 10)$

Answer **all** the following objective questions by choosing the correct option.

1. ———— is a process of passing information and understanding. (CO1 ,K6)

   (a) Communication (b) Oral

   (c) Writing (d) Speaking

2. Writing skill is a part of ———— . (CO1 ,K6)

   (a) Academic Learning

   (b) Soft Skill Learning

   (c) General Learning

   (d) None of the above

3. ———— is a logical argument carried out between two teams. (CO2, K6)

   (a) Debate (b) Communication

   (c) Discussion (d) All of these

4. A strong message can influence thinking, behaviour and ———————— . (CO2, K6)

(a) Character (b) Personality

(c) Belief (d) Both (a) and (b)

5. ———————— stands for video blog where all of the contents are in a video Format. (CO3, K6)

(a) Vlog (b) Blog

(c) YouTube (d) Google meet

6. Digital communication is ———————— to environmental changes? (CO3, K6)

(a) Less sensitive (b) More Sensitive

(c) Does not depend (d) None of the above

7. A short film is any motion picture that runs from fifteen seconds to ———————— in length. (CO4, K6)

(a) 45 Minutes (b) 30 Minutes

(c) 10 Minutes (d) 5 Minutes

8. The word creativity is associated with ———————— (CO4, K6)

(a) Thinking (b) Drawing

(c) Imagination (d) Surfing

9. ———————— shows a reader how a sentence is constructed and how it should be read. (CO5, K6)

(a) Punctuation (b) Modifiers

(c) Concord (d) All of the above

10. Every sentence should include at least a capital letter at the start, and ———————— at the end (CO5, K6)

(a) Comma (b) Capital letter

(c) Full stop (d) Exclamatory Mark

Section B (5 × 5 = 25)

Answer **all** the questions note more than 500 words each.

11. (a) Give few guidelines on summary writing. (CO1, K6)

Or

(b) Define communication and explain the purpose of communication. (CO1, K6)

12. (a) List any five important benefits of debating. (CO2, K6)

Or

(b) What are the rules that are to be followed during JAM session? (CO2, K6)

13. (a) Bring out some Video conferencing skills. (CO3, K6)

Or

(b) How to become a vlogger? (CO3, K6)

14. (a) What is academic listening? (CO4, K6)

Or

(b) Why creativity and imagination is important for science students? (CO4, K6)

15. (a) Write some techniques for a captivating presentation. (CO5, K6)

Or

(b) Why Punctuation is important in academic writing? (CO5, K6)

Section C (5 × 8 = 40)

Answer **all** the questions, not more than 1000 words each.

16. (a) Write a summary on Ayurvedic treatment and its benefits. (CO1, K6)

Or

(b) Write the skeleton of a summary. (CO1, K6)

17. (a) What are the persuasive words that would instantly grab the attention of the consumers? (CO2, K6)

Or

(b) Give an outline of persuasive essay. (CO2, K6)

18. (a) Write few steps to create a Site. (CO3, K6)

Or

(b) Write an essay 'Biodegradable' plastics? (CO3, K6)

19. (a) List out the steps on Poster making. (CO4, K6)

Or

(b) How to make a brochure? (CO4, K6)

20. (a) Imagine you are the principal of your college draft a circular that must be sent to the faculty and students on "online exam postponed'. (CO5, K6)

Or

(b) Write a note on basic capitalization rules. (CO5, K6)

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R1079

Sub. Code
548401

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Fourth Semester

Integrated Marine Biology

ECOLOGY AND ZOOGEOGRAPHY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. Polyps of reef-building corals contain microscopic algae called ————————. (CO1, K2)

   (a) Chlorella

   (b) Dinoflagellates

   (c) Zooxanthellae

   (d) Diatoms

2. Which of the following functions do mangroves primarily serve in coastal ecosystems? (CO1, K2)

   (a) Filtering pollutants from the water

   (b) Providing habitat for terrestrial birds

   (c) Storing freshwater for surrounding communities

   (d) Preventing coastal erosion and protecting shorelines

3. In a marine ecosystem, what organisms primarily occupy the second trophic level in energy flow? (CO2, K2)

(a) Phytoplankton

(b) Zooplankton

(c) Seagrasses

(d) Herbivorous fish

4. Which of the following is considered a key ecosystem service provided by marine ecosystems? (CO2, K2)

(a) Carbon sequestration

(b) Desertification prevention

(c) Timber production

(d) Urban development support

5. In population ecology, what does the term "carrying capacity" refer to? (CO3, K3)

(a) The maximum number of individuals a population can support in a given habitat

(b) The rate at which a population grows exponentially

(c) The number of species within a community

(d) The average age of individuals in a population

6. Which of the following factors is considered density-dependent? (CO3, K3)

(a) Natural disasters

(b) Birth rate

(c) Predation

(d) Competition for limited resources

7. What phenomenon describes the increased biodiversity arid ecological activity at the boundary of two distinct habitats? (CO4, K3)

(a) Habitat fragmentation

(b) Ecological succession

(c) Edge effect

(d) Keystone species interaction

8. In community ecology, what does the term "resilience" refer to? (CO4, K3)

(a) The total number of species in a community

(b) The ability of a community to resist external disturbances

(c) The primary producer-consumer relationship

(d) The reproductive capacity of keystone species

9. What phenomenon, associated with climate change, poses a significant threat to the delicate balance of marine biodiversity by altering ocean currents and affecting marine ecosystems? (CO5, K4)

(a) El Niño Southern Oscillation

(b) Thermal pollution

(c) Marine heat waves

(d) Submarine volcanic activity

10. What specific anthropogenic activity is known to lead to the creation of "dead zones" in marine environments, causing severe harm to marine biodiversity? (CO5, K4)

(a) Offshore wind energy generation

(b) Deep-sea mining operations

(c) Nitrogen and phosphorus runoff from agricultural practices

(d) Controlled oil spill experiments for research purposes

Part B (5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Give an elaborate note on the Ecological factors of the Marine Environment. (CO1, K2)

Or

(b) Write a short note on Estuaries and Mangroves. (CO1, K2)

12. (a) Write any two functional attributes of the marine ecosystem. (CO2, K2)

Or

(b) Explain the types in Marine Ecosystem modelling. (CO2, K2)

13. (a) Explain Density-dependent and independent factors. (CO3, K3)

Or

(b) Write a short note on Population growth and population density. (CO3, K3)

14. (a) Write a short note on the diversity and stability of community ecology. (CO4, K4)

Or

(b) Describe in detail about resilience and succession in marine ecosystem. (CO4, K4)

15. (a) What is Marine Biodiversity? Explain their importance. (CO5, K4)

Or

(b) Justify the major threats to Marine biodiversity. (CO5, K4)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Give an elaborate account on Pelagic Environment and Benthic Environment with examples. (CO1, K2)

Or

(b) Explain in Detail about Marine Zoogeography. (CO1, K2)

17. (a) Describe in detailed account on the structure and function of the marine ecosystem. (CO2, K2)

Or

(b) Define marine ecosystem services. Write a detailed account of system ecology and modeling. (CO2, K2)

18. (a) Explain the detailed account of Prey-predator relationship. (CO3, K3)

Or

(b) Give an elaborate account of intra-specific and inter-specific competition. (CO3, K3)

19. (a) Explain in detail about structure composition and concept of niche and edge effects. (CO4, K4)

Or

(b) Explain and justify the community-wise adaptation with suitable examples. (CO4, K4)

20. (a) What is Biodiversity assessment and the techniques related to marine biodiversity? (CO5, K4)

Or

(b) Explain the threats to marine biodiversity and evaluate the bio-security of the threats. (CO5, K4)

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R1080

Sub. Code
548402

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Fourth Semester

Integrated Marine Biology

VERTEBRATES

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. The key characteristic that defines chordatesis (CO1, K2)

   (a) Exoskeleton

   (b) Endoskeleton

   (c) Notochord

   (d) Exoskeleton and endoskeleton

2. In which geological era did the first vertebrates, including jawless fish, appear? (CO1, K2)

   (a) Palaeozoic (b) Mesozoic

   (c) Cenozoic (d) Neozoic

3. What is the evolutionary significance of the notochord in vertebrates (CO2, K2)

   (a) Digestive support

   (b) Reproductive organ development

   (c) Structural support in early development

   (d) Vision enhancement

4. Species which have diverged after origin from common ancestor giving rise to new species adapted to new habitats and ways of life is called as ————————. (CO2, K2)

(a) Adaptive radiation

(b) Divergent evolution

(c) Convergent evolution

(d) Mutation

5. The reptilian features observed in Seymouria is (CO3, K2)

(a) Gills for respiration

(b) Laying eggs in water

(c) Scales on the skin

(d) Larval stage in the life cycle

6. Respiratory organ in reptiles is (CO3, K2)

(a) Lungs (b) Gills

(c) Spiracles (d) Skin

7. In aquatic mammal's blubbers acts as a ————————. (CO4, K3)

(a) Heat insulator

(b) Connector

(c) Seclusion

(d) Shelter

8. In aquatic mammals, eyes under water remain protected by a special fatty secretion of ————————. (CO4, K3)

(a) Harderian glands

(b) Endocrine glands

(c) Metapleural gland

(d) Sweat gland

9. The process involves the establishment of the body's anterior-posterior and dorsal-ventral axes in vertebrate embryos called (CO5, K4)

(a) Cleavage (b) Neurulation
(c) Gastrulation (d) Axis formation

10. _____ is responsible for the formation of the neural tube in vertebrates. (CO5, K4)

(a) Cleavage (b) Neurulation
(c) Gastrulation (d) Differentiation

Part B ($5 \times 5 = 25$)

Answer **all** questions not more than 500 words each.

11. (a) Mention the key characters that chordates show at different stages in their life. (CO1, K2)

Or

(b) What drove amphibian evolution? (CO1, K2)

12. (a) Write down the specialized character of dipnoi. (CO2, K2)

Or

(b) Add a note on origin of amphibians. (CO2, K2)

13. (a) Mention the adaptive radiation in reptiles. (CO3, K2)

Or

(b) Discuss about the raise of dinosaurs. (CO3, K2)

14. (a) List out the changes transformed the ancestral amphibians into land adapted reptiles. (CO4, K3)

Or

(b) Write a short note on placental mammals. (CO4, K3)

15. (a) Write a short note on sex determination in fishes. (CO5, K4)

Or

(b) Explain axis formation in fish. (CO5, K4)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Give a brief account on fossil ancestors of tetrapod's. (CO1, K2)

Or

(b) Living craniates are distinguished from other chordates by a set of derived characters justify. (CO1, K2)

17. (a) List out the general characters of mammals. (CO2, K2)

Or

(b) Explain the development of new structure as adaptive characters in aquatic mammals. (CO2, K2)

18. (a) Discuss about the guiding mechanism in birds' navigation. (CO3, K2)

Or

(b) Discuss about the seymouria connecting link between amphibians and reptiles. (CO3, K2)

19. (a) Primate evolution provides a context for understanding human origins. (CO4, K3)

Or

(b) Illustrate the function of integuments in vertebrates. (CO4, K3)

20. (a) Describe the cleavage pattern in fish. (CO5, K4)

Or

(b) Explain the process of neural tube formation in fish. (CO5, K4)

———————

R1081

Sub. Code
2MB4A1

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Fourth Semester

Integrated Marine Biology

Allied — BOTANY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. Which taxonomic rank is immediately above Family in the classification hierarchy of angiosperms? (CO1, K1)

   (a) Class (b) Order

   (c) Genus (d) Phylum

2. The study of evolutionary relationships among groups of organisms is called : (CO1, K1)

   (a) Ecology (b) Taxonomy

   (c) Phylogeny (d) Morphology

3. Which of the following characteristics is typically associated with the family Asclepiadaceae? (CO2, K2)

(a) Presence of simple, opposite leaves

(b) Flowers typically actinomorphic and bisexual

(c) Seeds with a tuft of hairs aiding in dispersal

(d) Fruits often berry-like or capsule

4. Which of the following is a distinguishing feature of the family Euphorbiaceae? (CO2, K2)

(a) Presence of milky latex in the stem

(b) Leaves with parallel venation

(c) Flowers with colorful petals

(d) Fruits with multiple seeds enclosed in a fleshy pulp

5. Which of the following cereals is commonly known as "paddy"? (CO3, K2)

(a) Wheat (b) Maize

(c) Rice (d) Barley

6. Ragi is known by what other name? (CO3, K2)

(a) Oats (b) Sorghum

(c) Millet (d) Quinoa

7. The zygote in angiosperms is formed as a result of : (CO4, K2)

(a) Fertilization of an egg cell by a sperm cell

(b) Fusion of two egg cells

(c) Fusion of two sperm cells

(d) Self-pollination

8. In the development of the embryo sac, what is the eventual fate of the antipodal cells? (CO4, K2)

(a) They degenerate

(b) They form the embryo

(c) They become the endosperm

(d) They become the seed coat

9. What is the primary event that occurs during fertilization in angiosperms? (CO5, K2)

(a) Formation of the endosperm

(b) Fusion of male and female gametes

(c) Maturation of the ovule

(d) Initiation of seed development

10. Which structure in the ovule of angiosperms contains the female gametophyte? (CO5, K2)

(a) Ovary (b) Micropyle

(c) Embryo sac (d) Endosperm

Part B ($5 \times 5 = 25$)

Answer **all** the questions not more than 500 words each.

11. (a) Explain the significance of floral morphology in the taxonomy of angiosperms. (CO1, K1)

Or

(b) Discuss the significance of plant taxonomy in biodiversity conservation efforts. (CO1, K1)

12. (a) Describe the floral structure typical of the Euphorbiaceae family. (CO2, K2)

Or

(b) Explain the economic importance of the Poaceae family, focusing on its role in agriculture and industry. (CO2, K2)

13. (a) Explain the economic significance of pomegranate. (CO3, K2)

Or

(b) Discuss the nutritional value of mango and its importance. (CO3, K2)

14. (a) Discuss the formation and function of the seed coat in angiosperms, highlighting its role in protecting the embryo and facilitating seed dispersal.(CO4, K2)

Or

(b) Discuss how the nuclei within the embryo sac are organized and arranged in the Polygonum type. (CO4, K2)

15. (a) Define fertilization in plants and explain its significance in the reproductive process. (CO5, K2)

Or

(b) Explain the process of seed germination in Capsella. (CO5, K2)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Discuss the role of herbarium collections in botanical research and education. (CO1, K1)

Or

(b) Compare and contrast the advantages and disadvantages of traditional vs. digital herbarium collections. (CO1, K1)

17. (a) Discuss the economic importance of the Annonaceae family, focusing on its medicinal and culinary uses. (CO2, K2)

Or

(b) Compare and contrast the nutritional composition and uses of grains from different species within the Poaceae family. (CO2, K2)

18. (a) Analyze the economic benefits and challenges associated with modernizing paddy cultivation practices. (CO3, K2)

Or

(b) Propose a value-added product using green gram as a primary ingredient, detailing its production process and market potential. (CO3, K2)

19. (a) Define embryo dormancy in angiosperms and discuss its adaptive significance in relation to seed survival and dispersal. (CO4, K2)

Or

(b) Explain the process of embryo differentiation in angiosperms, including the formation of embryonic tissues and organs. (CO4, K2)

20. (a) Explain the process of embryo sac formation in Capsella and Luzula, including megasporogenesis and megagametogenesis, and discuss any structural variations between the two. (CO5, K2)

Or

(b) Discuss the importance of syngamy in plant development and the continuation of the life cycle. (CO5, K2)

———————