

R6656

Sub. Code

**3162T2/9HM2T1/
921T**

B.A./B.Sc./M.Sc. DEGREE EXAMINATION, APRIL – 2022

Second Semester

**Gender Studies / Catering Science and Hotel
Management / Integrate Marine Biology**

பொதுத் தமிழ் தாள் 2 – இடைக்கால இலக்கியமும் சிறுகதையும்

**(Common for B.A. Gender Studies / B.Sc. Catering
Science and Hotel Management / M.Sc. Integrated
Marine Biology)**

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

பகுதி அ

(10 × 2 = 20)

அனைத்து வினாக்களுக்கும் விடையளிக்க.

1. யாரைக் கைத்தொழி வினைகள் நீங்குவதாக ஞானசம்பந்தர் குறிப்பிடுகிறார்?
2. புன்னைநல் மாமலர் பொன் உதிர்க்கும் இடம் எது?
3. திருக்கடைக்காப்பு என அழைக்கப்பெறும் நூல் எது?
4. மாணிக்கவாசகருக்கு உருவக்காட்சி தந்த சிறப்புடைய தலத்தினைக் கூறுக.
5. அறம் செய்வதற்கு அடிப்படையாக அமைவது யாது?
6. திருமந்திரம் யாரால் இயற்றப்பட்டது? அது எத்தனையாவது திருமுறை?
7. இராமனின் பின் சென்ற நெஞ்சம் திரும்பிவரும் வரை காத்திருப்பேன் என்றவர் யார்?

8. மந்திர சக்தி வாய்ந்த நூலாகத்திகழ்வது எது? ஏன்?
9. குற்றாலக் குறவஞ்சி நூலின் ஆசிரியர் யார்?
10. தம்பிரான் தோழர் என அழைக்கப்படுபவர் யார்?

பகுதி ஆ

(5 × 5 = 25)

அனைத்து வினாக்களுக்கும் விடையளிக்க.

11. (அ) திருவாடானையின் உறைந்திருக்கும் இறைவனைப் பற்றி ஞானசம்பந்தர் கூறுவனவற்றை எழுதுக.

(அல்லது)

(ஆ) திருப்புத்தூர் வாழ் இறைவனை நாவுக்கரசர் எவ்வாறு போற்றுகின்றார்?

12. (அ) திருச்சுழியில் உள்ள இறைவனை எவ்வாறெல்லாம் வாழ்த்துகிறார்?

(அல்லது)

(ஆ) 'இன்பம் பெருக்கி' எனத் தொடங்கும் திருவெண்பா பாடல் உணர்த்தும் செய்தியினைத் தருக.

13. (அ) திருமந்திரம் – குறிப்பு வரைக.

(அல்லது)

(ஆ) படமாடக் கோயில் என்ற பாடல் வழி திருமூலர் சுட்டும் செய்தி யாது?

14. (அ) தமிழ்விடுதூதில் தமிழ் மொழியின் பிறப்பு குறித்து ஆசிரியர் குறிப்பிடும் செய்தியினை எழுதுக.

(அல்லது)

(ஆ) சதக இலக்கியம் குறித்து எழுது.

15. (அ) சிறுகதையின் இலக்கணம் யாது?

(அல்லது)

(ஆ) படைப்பாற்றலின் கூறுகள் யாவை?

பகுதி இ

(3 × 10 = 30)

எவையேனும் மூன்றனுக்கு விடையளிக்க.

16. திருக்கொடுங்குன்றத் தலத்தின் சிறப்பினை விவரி.
 17. உத்தரகோச மங்கையின் தனித்தன்மையை விளக்குக.
 18. அன்பின் பெருமையை திருமூலர் வழிநின்று விளக்குக.
 19. அபிராமி அந்தாதி சுட்டும் செய்தியினை எழுதுக.
 20. சைவ சமய குறவர்கள் பற்றி கட்டுரைக்க.
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R6640

Sub. Code

922CE

**(All UG PROGRAMS) DEGREE EXAMINATION,
APRIL – 2022**

Second Semester

English

Part II — COMMUNICATIVE ENGLISH — II

(Common for All U.G. Programmes)

(CBCS – 2020 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Give the antonyms of the following :
 - (a) Bleak
 - (b) Ominous
2. Fill in the blanks with suitable adverbs :
 - (a) She arrived _____ for the meeting
 - (b) We should work _____.
3. What is a welcome speech?
4. Frame sentences using the idioms (a) burning the midnight oil (b) make the ends meet.
5. What are the benefits of reading aloud?
6. Write one word substitutes for the following :
 - (a) Present everywhere
 - (b) fear of water

7. Identify the type of sentence :
 - (a) How thrilling the movie was !
 - (b) Do you like coffee?
8. What is a brochure?
9. Give two tips for interview.
10. Differentiate a clause and a phase.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a paragraph on the proverb, “Actions speak louder than words”.

Or

- (b) Write the synonyms for the following words :
 - (i) abundant
 - (ii) linger
 - (iii) optimistic
 - (iv) inept
 - (v) soothe.

12. (a) What is Intonation? Explain with examples.

Or

- (b) Explain the important elements of a ‘vote of thanks’ speech.

13. (a) How can you make your PPT presentation effective?

Or

- (b) What are the different components of an email?

14. (a) Differentiate 'denotation' and 'connotation' with examples.

Or

- (b) Mention some of the Do's and Don'ts during an online meeting.

15. (a) What are the elements of feature writing?

Or

- (b) Write a job application letter for the post of Assistant Professor in ABC college, Chennai.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Fill in the blanks with suitable prepositions :

- (a) we have been playing ————— morning.
(b) ————— brave, he is not intelligent.
(c) This work is ————— your dignity.
(d) I will come there ————— a week.
(e) Can you write ————— this pen?
(f) She put a bandage ————— the boy's cut finger.
(g) My uncle has invested a lot of money ————— farming.
(h) We have been working in this company ————— twenty years.
(i) He is laboring ————— a misapprehension, but laboring ————— a cause.
(j) The plane flew ————— the clouds.

17. Write a film review on the film you recently watched.
18. Write the one-word substitution for the following.
- (a) A human who eats human flesh.
 - (b) A room in a public building where outdoor clothes luggage maybe left.
 - (c) A place where coins are made.
 - (d) A person who is mentally ill.
 - (e) Fear of closed spaces.
 - (f) One who studies the evolution of mankind.
 - (g) One who doesn't take any alcoholic drinks.
 - (h) A speech prepared without any previous preparation.
 - (i) A disease which attacks many people in a particular area in one time.
 - (j) The one who loves good food and knows a lot about it.
19. Prepare a 'Brochure' for 'Spoken English' course.
20. Write ten utterances that takes place in a formal job interview.
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R6641

Sub. Code

**4532ES/
9HM2S1/
9BV2G1/
7BES2/
4BES2**

ALL U.G. DEGREE EXAMINATION, APRIL – 2022

Second Semester

General Subject

ENVIRONMENTAL STUDIES

(Common for All UG Programmes)

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

Explain the following Terms :

1. Abiotic factors
உயிரற்ற காரணிகள்
2. Biosphere
உயிரிய மண்டலம்
3. Soil fertilizer
மண் செழுமை
4. Food Resources
உணவு வளங்கள்

5. Energy flow

ஆற்றல் ஓட்டம்

6. Food Web

உணவு வலை

7. Species Diversity

இன வேறுபாடு

8. Endemic species

ஒரு பகுதியில் மட்டும் காணப்படும் இனங்கள்

9. Air Pollutants

காற்று மாசாக்கிகள்

10. Soil Pollution

நில மாசுபாடு

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write in detail about aim of environmental studies.

சுற்றுச்சூழல் கல்வியின் நோக்கம் பற்றி எழுதுக.

Or

(b) List the uses of Mineral Resources.

தாது வளங்களின் பயன்கள் பற்றி எழுதுக.

12. (a) Write a short notes on dams. Add a note on their effect on forests and tribal people.

அணைகள் பற்றி சிறு குறிப்பு வரைக. இவைகளால் காடுகளுக்கும், பழங்குடி மக்களுக்கும் ஏற்படும் விளைவுகள் பற்றி எழுதுக.

Or

- (b) Enumerate the role of individual in conservation of natural resources.

இயற்கை வளங்களை பாதுகாப்பதில் தனி மனித பங்கு பற்றி தொகுத்து எழுதுக.

13. (a) Give an account of structure and functions of an Eco systems.

சூழியத் தொகுதியின் அமைப்பு மற்றும் வேலைகள் பற்றி எழுதுக.

Or

- (b) List the value of Biodiversity.

பல்லுயிரின வேறுபாட்டின் மதிப்புகளை எழுதுக.

14. (a) Illustrate Ecological Pyramids.

சூழ்நிலை பிரமிடுகள் பற்றி படத்துடன் விளக்குக.

Or

- (b) Describe Hot spots of Biodiversity.

பல்லுயிரின வேறுபாடு கொண்ட சிறப்பிடங்கள் பற்றி விவரி.

15. (a) Write in detail about causes of Marine Pollution.

கடல் நீர் மாசுபாட்டிற்கான காரணங்கள் பற்றி எழுதுக.

Or

- (b) Discuss the effect of Nuclear hazards.

அணுக்கரு ஆபத்துகள் எவ்வாறான விளைவுகளை ஏற்படுத்துகின்றன என்பதை எழுதுக.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on conservation of Environment.

சுற்றுச்சூழலை பாதுகாத்தல் பற்றி ஒரு கட்டுரை வரைக.

17. List the forest resources. Add a note on their uses and over exploitation.

காடு வளங்கள் பற்றி எழுதுக. காடு வளங்கள் எவ்வாறு உதவுகின்றன, அவைகள் எவ்வாறு அதிகமாக உபயோகப் படுத்தப்படுகின்றன.

18. Describe an energy flow in the eco system.

ஒரு சூழிய தொகுதியில் ஆற்றல் ஓட்டம் எப்படி நடக்கிறது என்பதை விவரி.

19. List and explain threats to Biodiversity.

பல்லுயிரின வேறுபாட்டுக்கு ஏற்படும் அச்சுறுத்தல்களை வகைப்படுத்தி விளக்குக.

20. Give an account of Air Pollution.

காற்று மாசுபாட்டை பற்றி தொகுத்து எழுதுக.

R6783

Sub. Code

548201

M.Sc. DEGREE EXAMINATION, APRIL – 2022.

Second Semester

Integrated Marine Biology

BIOLOGICAL OCEANOGRAPHY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

All questions carry equal marks.

1. What is species richness?
2. Define nekton.
3. Describe red tide.
4. Explain the Arabian Sea.
5. What is primary productivity?
6. Define Biomass.
7. Note on Saltmarshes.
8. What is the economical importance of seaweed?
9. Explain about the Phoresis.
10. Give example for parasitism relationship in the ocean.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write detail note on classification of plankton.

Or

- (b) Describe the oceanic zone with diagram.

12. (a) Write a note on factors affecting primary productivity.

Or

- (b) Explain briefly on paralytic shellfish poisoning.

13. (a) Give an account on types of zooplankton and its distribution.

Or

- (b) Write a note on bioindicators.

14. (a) Explain the economical importance of seagrass.

Or

- (b) Write detail note on sand dune vegetation.

15. (a) Why are parasites ecologically important?

Or

- (b) Elaborate the mutualism and give some example.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Sea as biological environment - Explain.
 17. Write an essay on factors affecting phytoplankton distribution in the sea.
 18. Describe the secondary production in Bay of Bengal and Arabian Sea.
 19. Explain the feature of sand dune vegetation.
 20. Write an essay on Mutualism, parasitism.
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R6784

Sub. Code

548202

**M.Sc. (INTEGRATED MARINE BIOLOGY) DEGREE
EXAMINATION, APRIL – 2022**

Second Semester

ECOLOGY AND ZOOGEOGRAPHY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Hydrothermal vent
2. Salinity
3. Food chain
4. Feedback
5. Intra-specific
6. Sex ratio
7. Niche
8. Diversity
9. Pollution
10. Red list

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

Each answer should be in about 500 words.

All questions carry equal marks.

11. (a) Mention the ecological factors of the marine environment.

Or

- (b) Write note on the coral reef environment.

12. (a) Discuss on the ecological pyramid.

Or

- (b) Explain the food web in a marine environment.

13. (a) Comment on the age structure and population growth.

Or

- (b) Note the prey-predator relationship in a population.

14. (a) Briefly explain the community – wise adaptations.

Or

- (b) Write on the edge-effect with examples.

15. (a) Describe the major threats to marine biodiversity.

Or

- (b) Explain alien species.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Expound the importance of mangrove environment.
 17. Write a detailed account on the marine ecosystem services.
 18. Explain the density dependent and independent factors in the population ecology.
 19. Discuss with suitable examples of animal associations in the sea.
 20. Briefly expound on the definition and importance of marine biodiversity.
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R6785

Sub. Code

9MB2A1

M.Sc. DEGREE EXAMINATION, APRIL – 2022

Second Semester

Integrated Marine Biology

Allied II – GENERAL CHEMISTRY II

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Why is nitroglycerin explosive?
2. What is meant by corrosion inhibitors?
3. What are the application of solvent extraction?
4. What is the basic principle of paper chromatography?
5. How do you make super phosphate?
6. Write any two bacteria's name.
7. What are the functions of RNA?
8. Write any two tests for amino acids.
9. Draw the structure of methyl orange.
10. Write the uses of polyvinyl chloride.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write the raw materials needed for match industry.

Or

- (b) Discuss the method of preventing corrosion.

12. (a) Write the various application of soxhlet extraction.

Or

- (b) Write the principle and application of thin layer chromatography.

13. (a) Write short note on potassium fertilizer.

Or

- (b) Discuss about the phosphate mobilizing bio fertilizer.

14. (a) What is the primary structure of DNA? Explain.

Or

- (b) Write the short note on isoelectric point.

15. (a) Write short note on hypertension.

Or

- (b) Distinguish between natural rubber and synthetic rubber.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write the bleaching and colouring process of paper.
17. Write the principle and application of fractional distillation.
18. What are the different types of fertilizer? Explain.
19. Discuss briefly the classification and structure of proteins.
20. Write the preparation and uses of (a) Nylon-6.6
(b) Polythene. (5 + 5)

R6786

Sub. Code

92BPEL

**M.Sc. (Integrated Marine Biology) DEGREE
EXAMINATION, APRIL – 2022**

Second Semester

PROFESSIONAL ENGLISH FOR LIFE SCIENCES – II

(CBCS – 2020 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Write the synonyms for the following words:
 - (a) Sweltering
 - (b) Idle
2. Write the antonyms for the words given below:
 - (a) Persuade
 - (b) Misconception
3. Mention any two strategies to understand inferential questions.
4. Expand TED.
5. Give any two steps to create Vlog
6. How can you prepare yourself for attending an interview?

7. What is academic listening?
8. How do scientists find solutions with logical reasoning?
9. Why punctuation matters?
10. Punctuate the following.

Scientists who serve for the world without them there is no science.

Part B (5 × 5 = 25)

Answer any **five** of the following questions.

11. Match the following words and their meaning.
 - (a) Gallop – being lazy
 - (b) Misconception — not moving / not changing
 - (c) Idle — increasing at a fast pace
 - (d) Retrospect — wrong understanding of something
 - (e) Stationary — a review of past course of action
12. Write a note on the attractive words of persuasive communication.
13. Prepare a just a minute speech on Genetic Science.
14. Write a short note on video conferencing skills.
15. Design a poster with effective slogans on the importance of cleanliness.

16. Associate your ideas with the picture given below:
17. Write five sentences of the following picture:



18. Write any punctuation marks and the rules for using each of them.

Part C

(3 × 10 = 30)

Answer any **three** of the following questions.

19. Read the given passages and answer the questions that follow.

Ayurveda emphasizes that individual well-being should not come into conflict with social well-being. A happy life is that which achieves individual well-being, whereas a wholesome life is that which is conducive to social well-being. These concepts are currently in application and we have countries projecting their personal and national well-being indices, which match exactly the Ayurvedic notion of a happy and wholesome life. Integrative approach to healthcare Ayurveda is perhaps the earliest form of Integrative Medicine practised by humanity. The definition of Ayurveda is in tune with

modern notions of Integrative Medicine. Integrative Medicine attempts to heal the body, mind and self at the same time or treats the human being as a complete whole. Integrative Medicine combines mainstream medical therapies and 14 complementary and alternative medical therapies for which there is some high-quality scientific evidence of safety and effectiveness. Ayurveda states that human life rests on the tripod of the body, mind and self. Ayurvedic texts also advise that there are multiple approaches to healing that are prevalent in the world and that we must examine and integrate the most effective methods to make a complete system of healing.

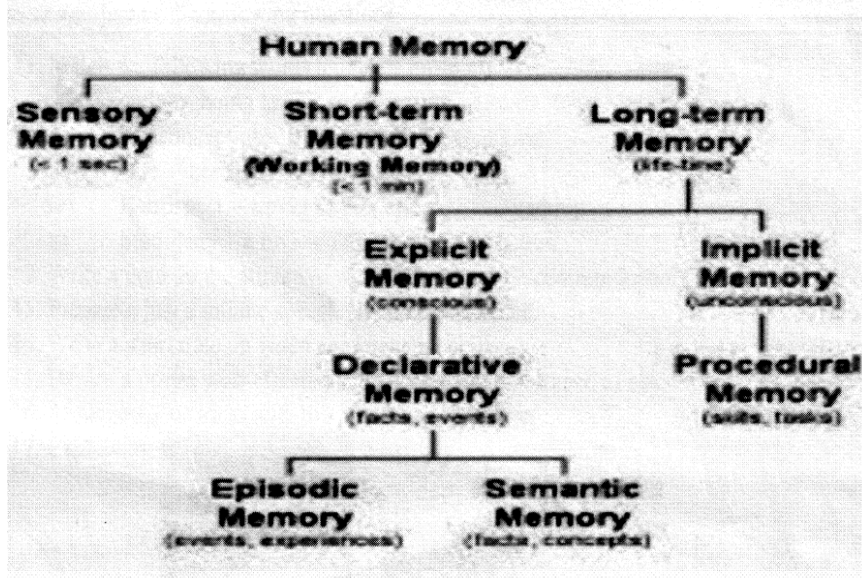
Balance of inner environment and personalized medicine
Ayurveda defines health as a dynamic balance of the internal environment that positively impacts the sense organs, mind and the self. Just like the sun, the moon and the wind maintain the balance of the external environment, the body maintains itself by balancing anabolic (building up) and catabolic (breaking down) activities by self-regulation.

Each individual is unique and has a specific mental and physical constitution, which define the vulnerability to disease and the scope for achieving higher levels of health. Ayurveda has also been at the forefront of advocating an approach to personalized medicine from historical times. Advances in human genetics and medical genetics have heralded the emergence of a personalized approach to medicine today that tailors medical intervention to suit individual needs.

- (a) How does Ayurveda help in individual well-being?
- (b) In what way does Ayurveda conform to the concept of integrative medicine?
- (c) What is inferred from fourth paragraph?
- (d) Why does Ayurvedic medicine have variations in treating each individual?
- (e) How would you relate medical genetics with Ayurveda?

20. Rajesh creates awareness about the ill effects that are caused to one's health due to the use of plastic and persuades Suresh to use Eco friendly cloth bags. Write a dialogue between a dialogue between Rajesh and Suresh.

21. Describe the following in a paragraph.



22. Write an argumentative essay on the significance of social harmony.
 23. Make a flyer for science exhibition to be conducted in your department.
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R6787

Sub. Code

941T

M.Sc. DEGREE EXAMINATION, APRIL – 2022

Fourth Semester

Integrated Marine Biology

பொதுத்தமிழ் தாள் - 4: பண்டைய இலக்கியமும் நாடகமும்

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

பகுதி அ

(10 × 2 = 20)

பின்வரும் அனைத்து வினாக்களுக்கும் ஓரிரு சொல்/ தொடரில் விடை தருக.

1. “சிறு வெள்ளாங்குருகே எனத் தொடங்கும் வெள்ளிவீதியாரின் நற்றிணைப் பாடல்” எந்தத் திணைக்குரியது?
2. “சிற்றினம் சேரமை” என்பதன் பொருள் யாது?
3. அறிஞர் அண்ணாவின் புகழ்ப்பெற்ற நாடகங்கள் இரண்டினைக் குறிப்பிடுக.
4. நீதிதேவனின் மயக்கம் என்ற நாடகம் எந்தக் கதையைக் கருவாகக் கொண்டு அமைகிறது?
5. நெய்தல் திணை என்பது எந்நிலத்தின் அமைவிடம்?
6. காஞ்சித் திணை - விளக்குக.
7. ஓரங்க நாடக அமைப்பில் காணலாகும் சங்கப் பனுவல் எது?
8. நாலடியார் - பெயர்க்காரணம் கூறுக.
9. ஓரங்க நாடகத்தின் தனித்தன்மைகளுள் ஒன்றினைக் குறிப்பிடுக.
10. ஓரங்க நாடகத்தில் காட்சிப் பின்னனி எவ்வாறு அமையும்?

பின்வரும் வினாக்களுக்கும் ஒரு பக்க அளவில் விடை தருக.

11. (அ) பிசிராந்தையாரின் பாடல்கள் உணர்த்தும் புறச்செய்திகளை எழுதுக.

(அல்லது)

- (ஆ) பழமொழி நானூறு உணர்த்தும் அறக்கருத்துக்களைப் புலப்படுத்துக.

12. (அ) நீதிதேவன் மயக்கத்தின் மையக்கருத்தைச் சுருக்கி எழுதுக.

(அல்லது)

- (ஆ) நீதிதேவன் மயக்கத்தின் வாயிலாக அறிஞர் அண்ணாவின் குறிக்கோளை எடுத்தியம்புக.

13. (அ) கற்பு என்றால் என்ன? விளக்குக.

(அல்லது)

- (ஆ) 'இறைச்சி' என்னும் இலக்கிய உத்தியைச் சான்றுடன் எடுத்துரைக்க.

14. (அ) சங்க இலக்கியங்களுள் எட்டுத்தொகை நூல்கள் குறித்து எழுதுக.

(அல்லது)

- (ஆ) திருக்குறளின் சிறப்புகள் குறித்து விரிவாக எடுத்துரைக்க.

15. (அ) நாடகத்திற்குரிய மெய்ப்பாடுகள் யாவை?

(அல்லது)

- (ஆ) 'வகுப்பறை' என்னும் தலைப்பில் ஓர் ஓரங்க நாடகத்தை ஒரு பக்க அளவில் படைத்துக் காட்டுக.

பகுதி இ

(3 × 10 = 30)

பின்வரும் வினாக்களுள் எவையேனும் மூன்றனுக்கு விரிவாக விடையளி.

16. சிறுபாணாற்றுப்படை பாணர்களை ஆற்றுப்படுத்தும் பாங்கினைத் தொகுத்துரைக்க.
17. நீதிதேவன் மயக்கத்தில் காணலாகும் வாதம் பிரதிவாதங்கள் குறித்துக் கட்டுரை வரைக.
18. புறத்திணைகள் குறித்துக் கட்டுரை வரைக.
19. சங்க இலக்கியங்களுள் அகப்பொருள் இலக்கியங்கள் குறித்து விவரிக்க.
20. 'இயற்கைப் பாதுகாப்பு' என்னும் தலைப்பில் ஓர் ஓரங்க நாடகத்தை மூன்று பக்க அளவில் எழுதுக.

R6788

Sub. Code

942E

M.Sc. DEGREE EXAMINATION, APRIL – 2022

Fourth Semester

Integrated Marine Biology

English IV : ENGLISH FOR ENRICHMENT - IV

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. What is Pickering's job in 'Pygmalion'?
2. In G.B. Shaw's Pygmalion, who is Eliza Doolittle?
3. How many chapters are there in Swami and Friends?
4. Where did Swaminathan's grandmother live? Where were her belongings?
5. How is Bassanio related to Antonio in 'The Merchant of Venice'?
6. Why is Romeo and Juliet a tragedy?
7. Place the suitable verbs in brackets with the correct tense:
 - (a) My brother _____ (talk) to his friends on the phone.
 - (b) I always _____ (wear) my woollen coat.

8. Supply the appropriate tag questions:
- (a) There is a crowd at the gate, _____ ?
 - (b) His parents treat him like a kid, _____?
9. How to prepare for a Group discussion?
10. Fill in the blanks as directed:
- (a) Call a taxi for me, _____? (polite)
 - (b) Get me a glass of water, _____? (very polite)

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) How are Victorian social classes represented in 'Pygmalion'?

Or

- (b) Who are Professor Higgins and Colonel Pickering in 'Pygmalion'?

12. (a) Write about the four persons who were Swami's friends.

Or

- (b) How did Mani and Rajam, instead of fighting, become friends?

13. (a) Explore the idea of "otherness" in Romeo and Juliet.

Or

- (b) What is the role of significance of autolycus in 'The Winter's Tale'?

14. (a) Place the suitable verbs in brackets with the correct tense:

- (i) Man and woman _____ (is/are) complementary each other.
- (ii) The leader as well as his brothers _____ (belong/belongs) to the same tribe.
- (iii) Cats and dogs _____ (do/does) not get along.
- (iv) The students accompanied by their teacher _____ (have/has) gone on a picnic.
- (v) A large sum of money _____ (was/were) stolen.

Or

(b) Change the following sentences as directed:

- (i) The dog went to the county fair. (into interrogative)
- (ii) Kim saw the dog eat popcorn. (into exclamatory)
- (iii) Why is the dog going to the county fair? (into statement)
- (iv) Come to the fair with me! (into interrogative)
- (v) Hey! There's no more popcorn! (into statement)

15. (a) What are the skills required for group discussion?

Or

- (b) Fill in the blanks in conversation with the words of apologizing.

Mother: What was that terrible noise? Did you drop anything?

Stella : _____, mom, I dropped a glass on the floor and it broke.

Mother: Were you hurt?

Stella: No, but I'm really _____.

Mother: I'm glad that you aren't _____, but why did you drop it? Haven't I told you not to handle glassware?

Stella: I _____ help it. The glass was too slippery.

Mother: It's okay, but you've got to be careful _____ !

Part C

(3 × 10 = 30)

Answer any **three** of the following questions.

16. Discuss the relationship between Higgins and his mother in 'Pygmalion'.

17. What were the reasons of animosity between Mani and Rajam?
18. Discuss Antonio's character and his part in 'The Merchant of Venice'.
19. Rewrite the following sentences as per the direction given in brackets:
- (a) The man with all the birds _____ (live/lives) on my street. (Put the correct form of the verb)
 - (b) The movie, including all the previews _____ (take/takes) about two hours to watch. (Put the correct form of the verb)
 - (c) The players, as well as the captain _____ (want/wants) to win. (Put the correct form of the verb)
 - (d) Either answer _____ (is/are) acceptable. (Put the correct form of the verb)
 - (e) You have cleaned your bike, _____? (place a suitable tag question)
 - (f) John and Max don't like maths, _____? (place a suitable tag question)
 - (g) Peter played handball yesterday, _____? (place a suitable tag question)
 - (h) They are going home from school, _____? (place a suitable tag question)

(i) The cheat said, "Honesty is the best policy". (into indirect speech)

(j) Anita says, "All my friends will come to the wedding". (into indirect speech)

20. Expand the following proverb.

'An Idle mind is a devil's workshop'.

R6789

Sub. Code

548401

M.Sc. DEGREE EXAMINATION, APRIL – 2022

Fourth Semester

Integrated Marine Biology

CELL AND MOLECULAR BIOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

All questions carry equal marks

Each answer should be in about 10 words

1. Tight junction
2. Mesosome
3. Sub units of Fernandez-moran
4. Telomere
5. Synapsis
6. Contact inhibition
7. Bacteriophage
8. Okazaki fragment

9. Non-sense codon
10. Wobble hypothesis

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

All questions carry equal marks.

Each answer should be in about 500 words.

11. (a) Enumerate the differences between SEM and TEM.

Or

- (b) Comment on the working procedures of staining techniques.

12. (a) Brief about lysosomes and its functions.

Or

- (b) Write a note on different types of chromatin in the chromosomes.

13. (a) Give a brief account about the reduction division of a cell.

Or

- (b) Write about cancer and its treatment.

14. (a) Describe the structure of DNA.

Or

- (b) Enumerate the types and functions of RNA.

15. (a) Comment on central dogma.

Or

- (b) Discuss the concept of gene regulation with suitable example.

Part C

(3 × 10 = 30)

Answer any **three** questions.

All questions carry equal marks

Each answer should be in about 1000 words

16. Describe the structure and functions of endoplasmic reticulum.
 17. Describe the cellular respiration and energy budget.
 18. Give a detailed account on proto oncogenes, oncogenes and tumor suppressor genes.
 19. Write an essay on replication of DNA.
 20. Discuss in detail about the protein synthesis and post translational modifications of protein.
-

R6790

Sub. Code

548402

M.Sc. DEGREE EXAMINATION, APRIL – 2022

Fourth Semester

Integrated Marine Biology

DEVELOPMENTAL BIOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Spermiation
2. Balfour's law
3. Chorda mesoderm
4. Serosa
5. Grey crescent
6. Autotomy
7. Thyroxine
8. Decidua basalis
9. Heteromorphosis
10. Axial gradient

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

All questions carry equal marks.

Each answer should be in about 500 words

11. (a) Discuss the role of hormones in gametogenesis.

Or

- (b) Describe the type, plan and physiology of cleavage.

12. (a) Explain the organogenesis of eye in frog.

Or

- (b) Describe the development of foetal membranes in chick.

13. (a) Write an account on the concept of organizer.

Or

- (b) What do you mean morphallactic regeneration?

14. (a) Give a short account on role of hormones in amphibian metamorphosis.

Or

- (b) Describe the embryology and physiology of extra-embryonic membranes of chick.

15. (a) Comment on nuclear transplantation in acetabularia.

Or

- (b) Write an account on regeneration in planaria.

Part C

(3 × 10 = 30)

Answer any **three** questions.

All questions carry equal marks

Each answer should be in about 1000 words.

16. Define fertilization. Give a detailed account on egg activation during fertilization.
 17. Describe the development of heart of frog.
 18. Give a detailed account on various changes takes place during metamorphosis in amphibia.
 19. Write an essay on mammalian placentation.
 20. Discuss in detail about regeneration in amphibians.
-

R6791

Sub. Code

9MB4A1

M.Sc. DEGREE EXAMINATION, APRIL – 2022

Fourth Semester

Integrated Marine Biology

**ALLIED-IV : TAXONOMY OF ANGIOSPERMS,
ECONOMIC BOTANY AND EMBRYOLOGY OF
ANGIOSPERMS**

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **ALL** questions.

1. What is the importance of taxonomy?
2. Taxon
3. Write the systematic position of custard apple.
4. Milky weed family
5. *Eleusine coracana*
6. Mention any two health benefits uses of *Punica granatum*
7. Circinotropous
8. Sporopollenin
9. Cellular type
10. Triple fusion

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss about the preparation of herbarium techniques.

Or

- (b) List out the merits and demerits of Bentham and Hooker's system of classification.

12. (a) Explain the general character and floral diagram of custard apple.

Or

- (b) Briefly explain about the inflorescence of Poaceae.

13. (a) Describe about the economic importance of coffee.

Or

- (b) List out the economic importance of oil obtained from Sandal wood.

14. (a) Briefly explain about the development of microsporangium.

Or

- (b) Add a note on anatropous and hemianatropous ovule.

15. (a) Write short notes on the double fertilization.

Or

- (b) Explain about the development of monocot embryo.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on the Bentham and Hooker's system of classification.
17. Discuss the characters, distribution and economic importance of Annonaceae.
18. Give an account on the economic importance of pulses.
19. Write an essay on different types of ovules.
20. Describe in detail about different types of endosperm.

R6792

Sub. Code

548601

M.Sc. DEGREE EXAMINATION, APRIL – 2022

Sixth Semester

Integrated Marine Biology

ANIMAL PHYSIOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define food composition.
2. What are the types in digestive enzymes?
3. Define electrocardiography.
4. Write a note on transportation of gases.
5. What is nitrogenous wastes?
6. Define osmoregulation?
7. Write a note on nervous system.
8. Define reflex action.
9. What is sex reversal?
10. Write a short note on significance of marine organisms.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Briefly describe about food compositions and classification.

Or

- (b) Give an account on types and mechanisms of digestive enzymes.

12. (a) Discuss about respiration types and respiratory organs in animals.

Or

- (b) Write a note on blood composition.

13. (a) Describe the structure of nephron.

Or

- (b) Write a note on osmoregulation in fishes.

14. (a) Describe about types and functions of neurons.

Or

- (b) Describe about muscle physiology.

15. (a) Write a note on endocrine systems.

Or

- (b) Describe about monosex seed production?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe in detail about the mechanism of absorption and assimilation.

17. Give detailed notes on blood function and coagulation mechanisms.

18. Explain about excretion and types of nitrogenous wastes.
 19. Describe in detail about mechanism and theories of muscle contraction.
 20. Explain the physiology of marine organism and their significance.
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R6793

Sub. Code

548602

M.Sc. DEGREE EXAMINATION, APRIL – 2022

Sixth Semester

Integrated Marine Biology

FISH AND FISHERIES

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Ichthyology.
2. Binomial nomenclature.
3. Gonado-somatic index.
4. Anadromous migration.
5. Etiology.
6. EUS
7. Vibriosis
8. Rigor mortis
9. CIBA
10. Name any four text books with author's name in fisheries.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the food and feeding adaptations in fish?

Or

- (b) Describe the morphometric and meristic characters in fish.

12. (a) Define fecundity and how do you determine fish fecundity.

Or

- (b) Write a short note on types of reproduction in fish.

13. (a) What is fish survey? Why should we assess the status of marine fisheries resources?

Or

- (b) What are the specific adaptations of acoustic communication in fishes?

14. (a) What are types of diseases in fish?

Or

- (b) What are the organoleptic indices to assess in seafood spoilage?

15. (a) Write a short note on fishery resources in coral reef ecosystem.

Or

- (b) What are the government schemes to promote marine fisheries?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on classification of fishes with suitable flowcharts.
 17. Elaborate the reproductive biology of any four commercially important marine fish.
 18. What are the different methods of fishing? Add notes on modern and conventional craft and gears in fishing.
 19. Give a detailed account on bacterial and fungal human diseases related to seafood spoilage.
 20. Discuss in detail about organization involved in fisheries conservation and management.
-

R6794

Sub. Code

548E03

M.Sc. DEGREE EXAMINATION, APRIL – 2022

Sixth Semester

Integrated Marine Biology

MARINE RESOURCES

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Continental shelf.
2. Renewable resources of ocean.
3. Marine phosphorites.
4. Sea Baulk.
5. Write down the history and range of EEZ of India.
6. Indigenous crafts.
7. Marine drugs.
8. Bioactive compounds.
9. Give two examples of marine steroids.
10. Sterols.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Why West coast of India is more productive than East coast of India?

Or

- (b) Write about the importance of conservation of non-living marine resources.

12. (a) Briefly describe about the exploration of manganese nodule from seafloor.

Or

- (b) Write notes on placer mineral resource of Indian coastal waters.

13. (a) Write about the principle methods in estimation of fishery resources.

Or

- (b) Briefly explain the reasons for decline in marine fisher production of India.

14. (a) Write about the importance of drugs from marine sources.

Or

- (b) Define bioactive compound of oceans.

15. (a) Write briefly on the properties of Toxins.

Or

- (b) Write a note on pharmacological significance of venoms from marine sources.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on various marine resources based on their origin.
 17. Explain the potential distribution of marine minerals in East and West coast of India.
 18. Why deep sea fishery resources have to be explored and targeted? – Discuss.
 19. Write an essay on drugs from marine sources.
 20. Write an essay on the bioactive compounds in marine environment.
-

R6795

Sub. Code

548801

M.Sc. DEGREE EXAMINATION, APRIL – 2022

Eighth Semester

Integrated marine Biology

EVOLUTION

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

All questions carry equal marks.

1. Define Evolution.
2. What is the Aristotle Concept?
3. Define Geological Time Scale.
4. What is the era?
5. Define Fossil.
6. What is Carbon dating?
7. Define Species concept.
8. What is Mimicry?
9. Define Molecular evolution.
10. What is Cladistics?

Part B

(5 × 5 = 25)

Answer **all** questions, by choosing either (a) or (b).

11. (a) Write about Urey Miller hypothesis.

Or

- (b) Explain about the A.I. Oparin's theory?

12. (a) Write about the Paleozoic era.

Or

- (b) Explain about the creataceous period.

13. (a) Write about the advantage and disadvantage of Darwinism.

Or

- (b) Explain about the fossilization process.

14. (a) Write note on the Gene and Gene pool.

Or

- (b) Explain about the evolution of man.

15. (a) Write a note on the Cladistics and Phenotics.

Or

- (b) Explain about the molecular clock.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the various theories of origin of life.
17. Explain in detail about the geological time scale.

18. Write a detail note on types of fossils dating.
 19. Write a detailed note on Hardy Weinberg law of gene concepts.
 20. Explain briefly about the molecular evolution.
-

R6796

Sub. Code

548802

M.Sc. DEGREE EXAMINATION, APRIL 2022

Eighth Semester

Integrated Marine Biology

BIOTECHNOLOGY

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is Electroporation?
2. Write the difference between Cohesive and Blunt end.
3. Give a short note about marine genomics.
4. What are the major applications of Marine Proteomics?
5. Define batch cultivation.
6. Name parts of the Bioreactor and explain about heat jacket.
7. Give a brief introduction about Down Stream processing.
8. Define flocculation.
9. Define Marine Natural products with example.
10. Name the flavourants from marine source.

Part B

(5 × 5 = 25)

Answer **all** questions by choosing either (a) or (b).

11. (a) Write a note on Restriction enzymes and its types.

Or

- (b) Explain about hot start and real time PCR.

12. (a) Explain the Molecular techniques for identification of Microorganisms.

Or

- (b) Write a detailed note on epigenomics.

13. (a) What are the methods of cultivation in bioreactor and explain it.

Or

- (b) Explain types of Bioreactors.

14. (a) Define all the major strategies to recover product in downstream processing.

Or

- (b) Write a detailed note on separation of insoluble products.

15. (a) Explain about marine natural products and their derivatives.

Or

- (b) What are the applications of enzymes in fish processing?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write a detailed note on molecular modification tools.
 17. Explain about Sangers Sequencing and new generation sequencing technology.
 18. Write about bioreactor, Principle, parts and types.
 19. Give a detailed note on downstream processing.
 20. Explain about Marine Lipids, Marine flavourants and its application.
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R6797

Sub. Code

548803

M.Sc. DEGREE EXAMINATION, APRIL – 2022

Eighth Semester

Integrated Marine Biology

POST-HARVEST TECHNOLOGY

(CBCS – 2018 onwards)

Time : Three Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

All questions carry equal marks

1. What is RSW?
2. Write note on flake ice.
3. Define rigor mortis.
4. Write note on gutting.
5. Define fishery product with two examples.
6. What is High Sea?
7. Define packaging.
8. What is frozen fish?
9. What is QC?
10. Write short note CAC?

Part B

(5 × 5 = 25)

Answer **all** questions by choosing either (a) or (b).

11. (a) Describe about advantage of ice for chilling fish.

Or

- (b) Write a detailed note on refrigerated sea water and its uses.

12. (a) Describe about steaming of crab.

Or

- (b) Write a detailed note on changes in protein.

13. (a) Give an account chemical treatment in fish processing.

Or

- (b) Describe the processing of crustacean.

14. (a) How can we increase the shelf life of processed fish?

Or

- (b) Write a detailed note on sanitation in processing plants.

15. (a) Explain about microbiological quality standard.

Or

- (b) How you do quality assessment in fish and fishery product?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write a detailed note on different type's ice and ice making.

17. Write a detailed note on post mortem changes in fish.

18. Give an account on different method of freezing.
 19. Write an essay on packing and packaging materials.
 20. Write a detailed note on seafood quality standards.
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R6798

Sub. Code

548E04

M.Sc. DEGREE EXAMINATION, APRIL – 2022.

Eighth Semester

Integrated Marine Biology

MARINE POLLUTION

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

All questions carry equal marks.

1. Define marine pollution.
2. Define Bioconcentration.
3. Write a short note on Eutrophication.
4. What is a detergent?
5. Define heavy metal.
6. Define mining.
7. What is ballast water?
8. Define bioremediation.
9. Write short note on AAS.
10. Write short note on GC.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write detail note on GESAMP and its role.

Or

- (b) Explain conservative and non-conservative pollutants.

12. (a) Describe about sewage treatment.

Or

- (b) Write a detailed note on marine debris.

13. (a) What are effects of mining and dredging operation in marine environment?

Or

- (b) Explain impact of heavy metal pollution in marine fish.

14. (a) Give an account on oil pollution and bioremediation.

Or

- (b) Write a detailed note on bio-invasion.

15. (a) Explain about various biological indicators.

Or

- (b) Describe about critical pollutants.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write a detailed note marine pollutions, sources and transportation pathways.

17. Give a detailed account on sewage pollution.

18. Write an essay on heavy metal pollution.
 19. Explain in detail about radioactive pollution.
 20. Explain in detail about the methods monitoring marine pollution.
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