

Chattogram Veterinary and Animal Sciences University
Faculty of Biotechnology and Genetic Engineering
BBGE 1st Year 1st Semester Final Examination 2024
Course Title: Communicative English
Course Code: ENG 101
Full Marks: 35, Time: 2 Hours

Figures in the margin indicate full marks. Answer **ALL** the questions.

Section: A

1. Correct the following sentences if they are incorrect. If the sentence is correct, copy it. 5
 - a) It is recommended that a student studies on a regular basis.
 - b) I would have helped you if I were rich.
 - c) Around a third of the global population cook using open fires.
 - d) The roads of Japan are better than Bangladesh.
 - e) I dislike his childish behavior.
2. Complete the following sentences: 5
 - a) Although social media has some good sides, _____.
 - b) In order to succeed in life, _____.
 - c) We should not run after money since _____.
 - d) The poor man was so weak that _____.
 - e) _____ provided that the weather is fine.
3. Plastic pollution has become one of the most alarming threats to our planet. Although governments and organizations are introducing policies to reduce plastic use, individuals also have a significant role to play in solving this growing crisis. For instance, understanding the harmful effects of plastic waste, spreading awareness in communities, and making lifestyle changes such as using reusable bags, bottles, and containers can make a meaningful difference. Suppose you are concerned about the increasing plastic pollution.

Write a letter to the editor of an English daily expressing your concern and suggesting possible solutions. 7

Chattogram Veterinary and Animal Sciences University
Faculty of Biotechnology and Genetic Engineering
BBGE 1st Year 1st Semester Final Examination-2024
Course Title: Bangladesh Studies (Theory)
Course Code: 0222-BAN-101 (T)
Full Marks: 35, Time: 2 Hours

(Figures in the right margin indicate full marks. Answer **Three (3)** questions from each section, where question No. 1 is compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

1. Evaluate the principles and features of the constitution of 1972. 5
2. Describe the background of the Language Movement. Discuss its effects in the evaluation of Bengali Nationalism. 6
3. Evaluate the contribution of women to the economy and economic development of Bangladesh. What are the barriers to women's participation in this field 6
4. Write short notes on any two 6
 - a) Border of Bangladesh
 - b) Sea-Port and Land-Port in Bangladesh
 - c) July-24

SECTION-B

5.
 - a) Write down the major mineral resources in Bangladesh. 3
 - b) Write down the importance and conservation of these resources. 3
6. What are the major economic sectors in Bangladesh? Explain in details. 6
7. Describe the main festivals celebrated in Bangladesh. 6
8. What are the agricultural products of Bangladesh? Describe it. 6

Section: B

4. Change the following sentences as directed.

5

- a) We prohibit smoking. (Change the voice.)
- b) I think that they have done it. (Make it simple)
- c) "A sail! A sail! " they cried out. (Change the form of speech)
- d) We elected him captain. (Change the voice.)
- e) This forbidden book lasted longer than all the rest. (Make it positive)

5. Write a paragraph of about 150 words on 'How to use free time effectively'.

5

6. Read the passage carefully and answer the questions that follow.

Digital distraction is becoming a significant hurdle to productivity in today's workplace. With constant notifications from email, messaging apps, and social media, employees find it difficult to focus on complex tasks for extended periods. Studies show that it can take over 20 minutes to regain full concentration after an interruption, leading to reduced efficiency and increased stress. Employers can address this by implementing "focus hours" with notifications silenced and by providing training on time-management techniques. Workers can also set personal boundaries, such as designated "no-screen" breaks and using website blockers during critical work sessions. By managing digital interruptions proactively, both organizations and individuals can enhance productivity and well-being.

I. True or false? If false, correct it.

2

- a) Notifications help employees maintain deep focus on tasks.
- b) It takes over 20 minutes to regain full concentration after an interruption.

II. Fill in the blank with words from the passage:

1

"Employees can implement 'focus hours' with notifications"

III. Multiple choice: Which is NOT recommended?

1

- A. Using website blockers during critical work sessions
- B. Scheduling "non-screen" breaks
- C. Encouraging constant email checks
- D. Training on time-management techniques

IV. Short answer: How do interruptions affect stress levels?

2

V. Give a title for the passage.

1

VI. Suggest one more strategy to reduce digital distractions:

1

Example: "Use a single device for all communications to minimize context switching."

Chattogram Veterinary and Animal Sciences University
Faculty of Biotechnology and Genetic Engineering
BBGE 1st Year 1st Semester Final Examination-2024
Course Title: Elementary Animal Science (Theory)
Course Code: 0811-EAS-101 (T)

Full Marks: 70

Time: 3 Hours

(Figures in the right margin indicate full marks. Answer **Three (3)** questions from each section, where question No. **1** and **5** are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

- | | | | |
|----|----|---|-------|
| 1. | a) | What do you know about Animal Kingdom? Characterize briefly the kingdom Animalia. | 1+2=3 |
| | b) | Enlist the major taxonomic ranks that are used in classification. Describe briefly 5 major phylum of animal kingdom. | 1+3=4 |
| | c) | Who are the Arthropods? Explain the external morphology, organ system, habitat and distribution and significance of a commercial important arthropod <i>Macrobrachium rosenbergii</i> . | 1+3=4 |
| 2. | a) | Define Apiculture. What are the advantages and disadvantage of Apiculture? | 1+3=4 |
| | b) | What is Sericulture? Give an overview of the steps associated with Sericulture. | 1+3=4 |
| | c) | Provide a scenario of technical, commercial and functional aspects of dairy farming. | 4 |
| 3. | a) | Describe a freshwater ecosystem with figure. | 4 |
| | b) | Summarize the major characteristics of halophytes. Categorize two types of nutrient cycles and identify their reservoirs. | 2+2=4 |
| | c) | Interpret two reasons why food webs are more stable than food chains. Explain the causes and consequences of ozone layer depletion. | 1+3=4 |
| 4. | a) | Enlist the organs associated with the ruminant alimentary system. | 2 |
| | b) | Draw and label the respiratory system of <i>Homo sapiens</i> . State the functions of lung. | 2+2=4 |
| | c) | Compare and contrast between Inhalation and Exhalation. | 2 |
| | d) | Draw and label the heart of a higher animal with specific work. | 4 |

SECTION-B

- | | | | |
|----|---|---|--------|
| 5. | a) | What do you mean by non-communicable disease? Enlist some non-communicable diseases with their causes and prevention. | 1+3=4 |
| | b) | What do you mean by metabolic disorder? Enlist some metabolic disorders in human and animals. | 1+2=3 |
| | c) | State one metabolic bone disease in livestock. Describe the pathophysiology of Type 2 diabetes mellitus. | 1+3=4 |
| 6. | a) | What is the functional unit of life? Draw and label the distinguishing features between animal and plant cell. | 1+3=4 |
| | b) | How many organ systems are found in <i>Bos taurus</i> ? Enlist various types of tissue with their specific functions. | 2+2=4 |
| | c) | What is multipotent system cell? Schematically show the origin of various types of blood cell it. | 1+3=4 |
| 7. | a) | What is laboratory animal? Classify experimental animals with examples. | 1+2=3 |
| | b) | Distinguish between the following pair:
(i) SPF and GF
(ii) Flora and Micro flora. | 2+2=4 |
| | c) | Justify the use of rats and mice in biomedical research. Mention the phenotypic characteristics, housing, and feeding pattern of mouse. | 2+3=5 |
| 8. | Write short notes on any three (3) of the following:
(i) Poultry (ii) <i>Labeo rohita</i> (iii) Pasteurization (iv) Rh factor (v) <i>Lamellidens</i> sp. | | 4x3=12 |

Full Marks: 70

Time: 3 Hours

(Figures in the right margin indicate full marks. Answer **Three (3)** questions from each section, where questions No. **1** and **5** are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

1.
 - a) Define conjugate acid-base with examples. 2
 - b) NH_3 is a Lewis base but H^+ is a Lewis acid-explain. 3
 - c) What are monoprotic, diprotic and polyprotic acids? 3
 - d) What is pH? Prove that $\text{pH} + \text{pOH} = 14$. 3
2.
 - a) Define homogenous and heterogenous equilibrium. 2
 - b) What conclusions you can draw from $K_p + K_c$? 3
 - c) Discuss the importance of Le-Chatelier's principle for a reaction to industrial needs. 5
 - d) What is meant by coupling of reactions? 2
3.
 - a) Write down the differences between ionic and covalent bond. 3
 - b) Explain different types of bond present in NH_4Cl . 3
 - c) Define intra-molecular forces. 2
 - d) What is hydrogen bond? Discuss the significance of hydrogen bond in biology. 4
4.
 - a) Define enzyme, coenzyme, and cofactor. 3
 - b) Describe the characteristics of enzyme. 2
 - c) Classify the enzymes based on reactions they catalysed. 3
 - d) Explain the hydrolases enzyme with four examples that occur in living system. 4

SECTION-B

5.
 - i. $\text{CH}_3\text{-CH}_2\text{Br} + \text{KOH}_{(\text{aq})}$  ?
 - ii. $\text{CH}_3\text{-CH}_2\text{Br} + \text{KOH}_{(\text{alc})}$  ?
 - a) Write the above two reactions and identify substitution and elimination reaction from above two. 2+1=3
 - b) Explain the mechanisms of reactions. 2
 - c) Express the Saytzeff's rule and explain it with an example of 2 bromobutane. 2
 - d) Explain the electrophilic substitution reaction with an example and mechanism. 4
6.
 - a) Define the following terms: 2
 - (i) Valence; (ii) Valence Electrons; (iii) Electronegativity and (iv) Dipole moment
 - b) Describe H-bond and classify it. 2
 - c) Explain the Co-ordinate covalent bond with two examples. 2
 - d) Describe the characteristics of sp^3 hybridization. Explain the sp^3 hybridization of methane briefly. 2+4=6
7.

Look at the following table and answer the questions bellow: 1+3=4

	X	Y
Model 1	Accept an electron pair	Donate an electron pair
Model 2	Release "A" ion	Release "B" ion
Model 3	Donate a proton	Accept a proton

 - a) Identify X, Y, A, B and state the model 1, 2 and 3 from the above table. 1+3=4
 - b) Define pH. If a solution has a pH 5.50 at 25°C , calculate the concentration of "A" and "B". 1+3=4
 - c) Explain that model 3 is superior to model 2. 3
8.
 - a) Define bioenergetics and explain that it follows the thermodynamic laws. 1+3=4
 - b) Explain that "ATP acts as fundamental biological energy". 4
 - c) "Calculate the standard free energy change of the reaction catalysed by the enzyme phosphoglucomutase. 4

Glucose-1-phosphate ----- Glucose-6-phosphate given that, starting with 20mM glucose-1-phosphate and no glucose-6-phosphate, the final equilibrium mixture at 25°C and pH 7.0 contains 1.0 mM glucose-1-phosphate and 19 mM glucose-6-phosphate. Does the reaction in the direct ion of glucose-6-phosphate formation proceed with a loss or gain of free energy?

Chattogram Veterinary and Animal Sciences University
Faculty of Biotechnology and Genetic Engineering
BBGE 1st Year 1st Semester Final Examination-2024
Course Title: Basic Biochemistry (Theory)
Course Code: 0512-BIO-101 (T)
Full Marks: 70, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer **Three (3)** questions from each section, where questions No. **1** and **5** are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

1. a) Define biomolecules. Write down the major functions of different biomolecules. 3
b) How does water regulate temperature in living organisms? 3
c) Derive the Henderson-Hasselbalch equation and explain how it can be applied to calculate the pH of a buffer solution in biological systems. 5
2. a) Compare between epimer and anomer with example. "Formation of the glucose polymer is crucial for the sustainability of cells"-explain. 5
b) What is a glycoside bond? Explain how disaccharide formation resembles the conversion of a hemiacetal to an acetal. 4
c) "Maltose is a reducing sugar, but sucrose is not"- explain why? 3
3. a) Classify amino acids based on the properties of their R groups. 4
b) Write the structure of the following peptide: Ala-Gly-Val. Shortly state the Sanger method to identify the N-terminal residue of a peptide. 5
c) Write down the functions of uncommon amino acids. How will you identify an amino acid by Ninhydrin test? 3
4. a) Define phospholipids. Outline the key biological functions of lipids in the living organisms. 4
b) What are essential fatty acids? Differentiate between saturated and unsaturated fatty acids with appropriate examples. 4
c) What are hormones? Describe the general features of Group I and Group II hormones. 4

SECTION-B

5. a) Differentiate between DNA and RNA based structure and function. 3
b) Write the major functions of nucleotides. 3
c) Illustrate and describe the cloverleaf structure of transfer RNA (tRNA). 5
6. a) What is a peptide bond? Illustrate the formation of a peptide with a diagram. 4
b) Define the C-terminal and N-terminal of a peptide. Write the role of Carboxypeptidase, Trypsin and Chymotrypsin in protein digestion and amino acid analysis. 4
c) Shortly explain the mechanism of hormone action. What do you mean by water- and fat-soluble vitamins? 4
7. a) Define the denaturation of nucleic acids. Show how phosphodiester bond link successive nucleotides in nucleic acids. 4
b) Describe the salient features of Watson-Crick DNA double helix model. 4
c) Shortly describe the "Chargaff's" base pairing rule. Why is DNA is more stable than RNA? 4
8. a) What is triglyceride? Mention the properties of triglycerides. 4
b) Write the differences between saturated and unsaturated fatty acids. 4
c) Why is cholesterol important? Evaluate the significance of omega-3 fatty acid in human. 4

Chattogram Veterinary and Animal Sciences University
Faculty of Biotechnology and Genetic Engineering
BBGE 1st Year 1st Semester Final Examination-2024
Course Title: Fundamentals of Computer & IT (Theory)
Course Code: 0611-CTT-101 (T)
Full Marks: 35, Time: 2 Hours

(Figures in the right margin indicate full marks. Answer **Four (4)** questions from each section, where question No. **1** and **6** are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

1. Write down the characteristics of the following types of computers 3
(i) Workstation (ii) Handheld Computer (iii) Super Computer
2. a) What is the differences between bit and byte? 1
b) Control Unit and Arithmetic Logic Unit (ALU) are the two main components of CPU of a computer system. Describe the primary functions of each of these components. 4
3. a) Carry out the following conversions: 3
(i) $565.75_{10}=?_2$ (ii) $7BC.514_{16}=?_8$ (iii) $AB2CD_{16}=?_{10}$
b) Perform the following binary operations: 2
(i) $110110.11_2 - 111.1_2$ (ii) $1100110_2 / 11_2$
4. a) Write down the differences between volatile and non-volatile memories. 3
b) What do you mean by DBMS? Give some examples where DBMS is used. 2
5. a) Differentiate between system software and application software in three points. 2
b) Construct a logic circuit diagram for the Boolean expression. 3
 $(\bar{x} + \bar{y}). (x + z). (y + z)$

SECTION-B

6. For logical inputs A and B and output Y, please construct truth tables and logic gates for the following logic operation: 2
(i) AND (ii) NOR
7. List and briefly explain the basic functional units of a complete computer system. Depicts with appropriate diagram to show how the units are organized and connected with each other. 5
8. a) Discuss the four primary functions of an operating system. 2
b) Define the following types of text codes: 3
(i) ASCII (ii) Unicode (iii) EBCDIC
9. a) Why are network protocols needed in a computer network? 1
b) Write short notes on: (i) HTTP (ii) SMTP (iii) FTP (iv) POP 2
c) What is IP address? Draw the layering concepts in the OSI model of network architecture. 2
10. a) Describe the major distinctions among the Internet, Intranet and Extranet. 3
b) List some benefits of using a computer network. 2

Chattogram Veterinary and Animal Sciences University
Faculty of Biotechnology and Genetic Engineering
BBGE 1st Year 1st Semester Final Examination-2024
Course Title: Physics (Theory)
Course Code: 0533-PHY-101 (T)
Full Marks: 35, Time: 2 Hours

(Figures in the right margin indicate full marks. Answer **four (4)** questions from each section, where question No. **1** and **6** are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

1. a) What is viscosity? Explain coefficient of viscosity. 2
2. a) Which are the most commonly used semiconductors and why? 2
b) State and explain Coulomb's law for electrostatics. 3
3. a) What do you mean by the "Degree's of Freedom" and "Mean Free Path" of gas molecules? Derive an expression for the mean free path travelled by gas molecules between successive collisions. 3
b) Establish a relationship between the molar specific heat at constant pressure with that at constant volume for an ideal piston-cylindrical arrangement working with gas molecules. 2
4. a) Derive Einstein's photoelectric equation. 3
 $\frac{1}{2}mv_{\max}^2 = h\nu - h\nu_0$, Where the symbols have their usual meanings.
b) Define Radioactivity. Derive the radioactive decay law. 2
5. a) Explain the significance of the first law of thermodynamics. 3
b) Distinguish between reversible and irreversible processes. 2

SECTION-B

6. Write down the Postulates of kinetic theory of gas. 3
7. a) Distinguish among conductor, semiconductor and insulator with the help of energy band diagram. 2
b) Derive an expression for dipole moment of an electric dipole. 3
8. a) Write short note on photoelectric effect. 2
b) Explain "Nuclear Fission" and "Nuclear Fusion" with an example of each. 3
9. a) Write down the physical significance of capillarity in our daily life. Derive an expression of surface tension of a liquid inside a capillary tube according to capillary rise method. 3
b) Show that, the excess pressure inside a soap bubble of radius 'r' over the atmospheric pressure outside is equal to $4T/r$, Where T is the surface tension of the liquid bubble. 2
10. a) "The kinetic energy of translation of gas molecules depends on the temperature, no matter what types of molecules they are"-Justify the statement. 2
b) Show that the efficiency of Carnot's engine using an ideal gas as the working substance is $\eta = 1 - (T_2 / T_1)$, Where the symbols have their usual meanings. 3

Chattogram Veterinary and Animal Sciences University
Faculty of Biotechnology and Genetic Engineering
BBGE 1st Year 1st Semester Final Examination-2024
Course Title: Introduction to Biology (Theory)
Course Code: 0511-BIO-101 (T)

Full Marks: 70

Time: 3 Hours

(Figures in the right margin indicate full marks. Answer **Three (3)** questions from each section, where question No. **1** and **5** are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

- | | | | |
|----|----|--|---|
| 1. | a) | How will you define life? | 2 |
| | b) | How different kinds of organisms are formed in the world? | 3 |
| | c) | State the theory of spontaneous generation. | 2 |
| | d) | How many classes are found in animal kingdom? Name them and provide at least 3 key characteristics of the phylum, Cnidaria, Nematoda and Arthropoda with an example. | 4 |
| | | | |
| 2. | a) | What is the relationship between biodiversity and ecological stability? | 2 |
| | b) | Describe the <i>ex situ</i> and <i>in situ</i> methods of biodiversity conservation. | 5 |
| | c) | Define critically endangered, endangered, vulnerable, and extinct species, and give examples with scientific names. | 5 |
| | | | |
| 3. | a) | What is species and speciation? | 2 |
| | b) | Show the distinguishing features between vertebrates and non-vertebrates. | 2 |
| | b) | What are the concepts of species and processes driving species evolution? Describe biological species concept. | 5 |
| | d) | Discuss the role of fungi in ecosystem. | 3 |
| | | | |
| 4. | a) | What is ecology? | 2 |
| | b) | Describe the different levels of ecological organization and explain each with examples. | 4 |
| | c) | What are the elements of organismal, population, community and ecosystem ecology? | 4 |
| | d) | Mention the importance of water vascular system in starfish. | 2 |

SECTION-B

- | | | | |
|----|----|---|---|
| 5. | a) | Draw a schematic diagram of the process of moon formation. | 2 |
| | b) | Draw a schematic diagram showing how life originates from non-living matter. | 2 |
| | c) | How many domains of life? Differentiate among different domain of bacteria, archaea and eukaryotes. | 3 |
| | d) | Describe the key differences between green algae (Chlorophyta) and algae (Rhodophyta). | 4 |
| | | | |
| 6. | a) | Define biodiversity and describe its importance. | 2 |
| | b) | Identify and explain the different levels of biodiversity. | 2 |
| | c) | What is the major threat to biodiversity? Propose strategies for conserving biodiversity. | 3 |
| | d) | Classify the following organisms into their respective phyla and write down their biology: Flatworms and squids. | 5 |
| | | | |
| 7. | a) | What is genetic equilibrium? | 2 |
| | b) | Explain the Hardy-Weinberg principle of genetic equilibrium. | 2 |
| | c) | Describe the conditions that must be met for the Hardy-Weinberg equation to apply. | 3 |
| | d) | Define abiotic synthesis. Why are coral reefs, formed by animals in the phylum Cnidaria, important to marine biodiversity and coastal protection? | 5 |

8. Write short notes on any **03 (three)** of the following:

4x3=12

i) Lichens ii) Hydra iii) IUCN iv) Flora of Bangladesh v) Pteridophytes