



KATHMANDU

DON BOSCO COLLEGE (10+2)

1st Terminal Examination -2058

Stream : Science
Class : XI
Subject : Biology

Time : 3 hrs.
F.M. : 75
P.M. : 30

Group "A"

Attempt all questions:

Q.No. [1] Answer the following questions: [1x15=15]

- (a) How does Algae differ from Fungi ?
- (b) Name the pigments of Red and Brown algae.
- (c) Why Plasmodium is called digenetic ?
- (d) What is cyclosis ?
- (e) What are decomposers ?
- (f) Define the term food chain.
- (g) What is trophic level ?
- (h) What are the types of teeth found in frog ?
- (i) Why is there the characteristic hump in frog ?
- (j) Why are bacterial cells called nature's scavengers ?
- (k) What is Binomial Nomenclature ?
- (l) Define Taxonomy.
- (m) In how many days, was the earth created by God ?
- (n) Who is Aleximander ?
- (o) What the Chinese people believe about the origin of life ?

Q.No. [2] Answer the following questions: [3x10=30]

- (a) Draw a well-labeled diagram of Spirogyra.
- (b) Describe the process of Budding in Yeast.
- (c) Write briefly about pro-erythrocytic Schizogony in Plasmodium.
- (d) Write five important characters of phylum Protozoa.
- (e) Define ecological pyramids. Explain any one type of pyramid with diagram.
- (f) Differentiate between:
 - (i) Autotrophs and Heterotrophs
 - (ii) Herbivorous and Carnivorous
 - (iii) Photoautotroph and Chemoautotroph.
- (g) Describe the tooth of frog.
- (h) Why do frogs undergo hibernation?
- (i) Draw a well-labeled diagram of bacterial cell.
- (j) Give the differences between natural and artificial system of classification.

Q.No. [3] Describe the pond as an example of an aquatic ecosystem with well-labeled diagram. [7]

Q.No. [4] Why are bacteria considered as best friend as well as enemy number one. Explain your views.
or

Describe the sexual cycle in Mucor. [8]

Q.No. [5] Define Conjugation. Give diagrammatic presentation of conjugation in Paramecium. [8]
or

Describe the structure of Paramecium with well labelled diagram.

Q.No. [6] Describe the alimentary canal of frog with suitable diagram.
or

Explain briefly about the Miller and Urey's experiment.

👍 Best of Luck !



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1st Terminal Examination -2058

Stream : Science
Class : XI
Subject : Chemistry

Time : 3 hrs.
F.M. : 75
P.M. : 30

Group "A"

Attempt any 15 questions: [15x2=30]

- (1) Write the valency of dichromate ion (Cr_2O_7) in $\text{K}_2\text{Cr}_2\text{O}_7$.
- (2) Element X forms compound XH_3 with hydrogen. The element X also forms compound with Calcium. Write chemical formula of compound of X and Ca (valency of Ca = 2)
- (3) From the equation:
 $\text{N}_{2(g)} + 3\text{H}_{2(g)} \rightarrow 2\text{NH}_{3(g)}$
Which stoichiometric law is illustrated ? Justify.
- (4) Make the following chemical equations more informative.
(a) $\text{Zn} + 2\text{HCl} \longrightarrow \text{ZnCl}_2 + \text{H}_2$
(b) $2\text{KClO}_3 \xrightarrow{\Delta} 2\text{KCl} + 3\text{O}_2$
- (5) Explain why atomic weight of the elements are not whole number.
- (6) How will you relate the volume of gases with pressure at the given temp ?
- (7) Arrange the following gases in order of their decreasing rate of diffusion.
 CO_2 , H_2 , SO_2 , Cl_2 , O_2 , N_2 .
- (8) What is the effect of pressure on the boiling point of liquid ?
- (9) Water rises in the capillary while the mercury falls, why ?
- (10) Under what condition does $P \times V$ become constant ?
- (11) Calculate the weight, in grams, of 4.5 liters of oxygen gas at NTP.
- (12) Liquid drops are spherical in shape. Justify.
- (13) Write the electronic configuration of Ni^{++} .
- (14) What are the four quantum numbers of 13th electron of aluminum.
- (15) What are the possible values of l and m when $n=3$.
- (16) Write the ground state electronic configuration of the atom having mass number 45 and the number of neutron 24.
- (17) State Hund's rule of maximum multiplicity with a suitable example.
- (18) Why are elements of group VII A called halogens ?
- (19) State Modern periodic law.
- (20) What is meant by periodicity ?

Group "B"

Attempt any five questions: [5x5=25]

- (1) State and explain the Heisenberg's Uncertainty principle.
- (2) What do you mean by an orbital ? Distinguish between an orbit and an orbital.
- (3) A metal is found to give two oxides. On heating 1gm of each oxide in hydrogen, 0.798gm and 0.888gm of the metals are obtained. Show that the results are in agreement with the law of multiple proportions.
- (4) Sodium carbonate reacts with dilute hydrochloric acid to give sodium chloride, carbon dioxide and water. Write balanced chemical equation and limitations of the chemical equation.
- (5) State and explain Dalton's law of partial pressure.
- (6) A closed cylinder contains 300cc of chlorine gas at 740mm pressure and 42°C. Calculate the mass of chlorine present in the flask.
- (7) Discuss the main features of long form of periodic table.

Group "C"

Attempt any two questions: [10x2=20]

- (1) A jar contains 0.6 mole of CO₂. Calculate :
 - (a) number of moles of CO₂
 - (b) weight of CO₂.
 - (c) weight of carbon and oxygen.
 - (d) number of carbon and oxygen.
 - (e) volume of CO₂ at NTP.
- (2) (a) Verify Charles' law with suitable example.
(b) 0.125 dm³ of hydrogen gas is collected over water at 23°C and total pressure of 99085 Nm⁻². If the vapor pressure of water at 23°C is 2973 Nm⁻², what is the pressure exerted by the dry gas ? Also calculate the volume of dry gas under 1 atm. pressure.
- (3) State the periodic law on which Mendeleef's periodic table was based. What are the chief anomalies in the Mendeleef's periodic classification ?

👍 Best of Luck !



KATHMANDU
DON BOSCO COLLEGE (10+2)
1st Terminal Examination -2058

Stream : Science
Class : XII
Subject : Computer Science

Time : 3 hrs.
F.M. : 75
P.M. : 30

Group "A"

Attempt all questions:

Q.No. [1] Long questions: [15x2=30]

- (a) Explain about hardware organization (Computer Architecture) of the computer system.
- (b) Explain different stages of computer development process along with their basic characteristics.

Q.No. [2] Long questions: [5x9=45]

- (a) Differentiate betⁿ data & information.
- (b) Distinguish betⁿ analog & digital computers.
- (c) Write the differences betⁿ micro & mini computers.
- (d) Explain about AI.
- (e) Convert:
 - (i) $(65)_{10} = (?)_2$
 - (ii) $(110101)_2 = (?)_{10}$
 - (iii) $(765)_8 = (?)_{16}$
- (f) Subtract using complement method:
 - (i) 10101 [1's] (ii) 101101 [2's Complement method]
 - 11011 -100110
- (g) What do you mean by Boolean Algebra ? Explain AND & OR gates.
- (h) Make logical diagram of the following algebraic expressions:
 - (i) $D = AB + \overline{BC} + \overline{CA}$
 - (ii) $D = A'B'C' + ABC$
 - (iii) $D = A\overline{B}\overline{C} + \overline{A}BC + \overline{A}\overline{B}C$
- (i) What do you mean by I/O devices ? Explain about working mechanism of a mouse.



KATHMANDU
DON BOSCO COLLEGE (10+2)
1st Terminal Examination -2058

Stream : Science
Class : XI
Subject : English

Time : 3 hrs.
F.M. : 100
P.M. : 40

Attempt all questions:

- 1) Read the following passage and answer the questions given at the end: 10

The conference I had attended was held at Jaipur. A thousand people, nearly all of them Indians, were assembled in the great town hall. We had come to discuss literature as a unifying force, the future of the Indian languages, the Indian copyright act, a scheme for an encyclopedia, and so on. Fascinating to me, though I knew nothing of the subjects, was the symposium on the Indian languages. Twenty minutes were allotted to each. There were sixteen languages in all, and so writers from all parts of the peninsula could learn what was being done elsewhere, and could contact their colleagues, perhaps for the first time. A sense of enlargement and of complexity stole over the audience as they discussed whether, despite all these languages and perhaps through them, India could be one. In fact we slid towards politics. Everything out there does. But we did not go over the edge. It remained a conference of writers and the organization which convened it is pledged to be non political.

Questions

- a. Why did the people assemble in the great town hall?
- b. What were the topics to be discussed?
- c. Why were sixteen languages included in the symposium on Indian languages?
- d. Why did the discussion slip towards politics?
- e. Did the conference succeed or fail in terms of remaining non-political?

- 2.) Read the following conversations between A and B and make similar conversation of the following sentences: - -10

Example: - Your hair's too long.

- A: I want to have my hair cut. Do you know a good hairdresser around here?
B: I usually have mine cut at Toni's.
A: Toni's? Where is that exactly?
B: It's in Davies Street, opposite the cinema.

- 1) (a) You need some photocopies of a document.
- 2) (b) You've just finished a film in your camera.
- 3) (c) Your sheets are dirty.
- 4) (d) Your car needs servicing.
- 5) (e) You need a new suit.

- 3.) Rewrite the following sentences using compound noun phrases: -5

Example: You drive buses.
You are a bus driver.

- (a) Ann sells books.
- (b) Mandy takes photographs.
- (c) Angela reads the news on Television.
- (d) Jimmy sweeps road.
- (e) Chris plays classical music on the guitar.

- 4.) Write the intentions of the following people using *going to/ intending to/planning to/ thinking of ...ing*: -5
- Alex has taken all of his money out of his bank account.
 - Janet has just bought 100 kilos of cheese.
 - Wendy has decided that her life isn't exciting enough.
 - Roger has decided that he doesn't earn enough money.
 - Grandfather has decided that it's not safe to keep his money under his mattress.
- 5.) Fill in the blanks with appropriate prepositions: -10
- They couldn't get _____ the high wall, so they dug a tunnel _____ it.
 - He came _____ her, and put his arm _____ her waist.
 - Looking _____ the microscope, she saw the two cells separate and move slowly _____ each other.
 - He took two books _____ the shelf. He put one of them _____ the table and the other one _____ his briefcase.
 - His bullet whistled _____ my ear, so I shot him right _____ the eyes.
- 6.) Write an article describing your town and what visitors can do there. -10
- 7.) Answer any three of the following questions in about 75 words: - 6×3=18
- Describe the problem of Kim.
 - Why is Armando afraid of the heavy man on the bus?
 - Describe the lady who visited Mr. Sakota's Pharmacy late at night?
 - Describe Evengelina.
- 8.) Answer any two of the following questions in about 150 words: -22
- Summarize the poem "My heart leaps up when I behold".
 - What is your opinion of having plural children?
 - What is your idea about ghosts? Discuss.
- 9.) Complete the following sentences by choosing the correct word from the pair given in brackets. -10
- Mary was greatly _____ ed by her father's death. (affect/effect)
 - His death had a terrible _____ on her. (affect/effect)
 - When does the new law come into _____? (affect/effect)
 - There were a few _____ sheets of paper on the table. (loose/lose)
 - He expected to _____ the election. (loose/lose)
 - The college _____ was a popular person. (principal/principle)
 - She had some difficulty in understanding the _____ of acceleration. (principal/principle)
 - My doctor has a private _____. (practice/practise)
 - Ann must _____ her music for the exam. (practice/practise)
 - I'm going to buy a ruler from the _____ store. (stationary/stationery)

Best of Luck !



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1st Terminal Examination -2058

Stream : Science
Class : XI
Subject : Maths

Time : 3 hrs.
F.M. : 75
P.M. : 30

Group "A" (Short answer questions) (18 × 2 = 36)

Attempt all questions.

1. Resolve into partial fractions: $\frac{x}{(x-1)(x-3)}$
2. Define diagonal matrix. Give an example of scalar matrix of order 3.
3. If $A = \begin{pmatrix} 4 & 0 \\ 0 & 5 \end{pmatrix}$, find a matrix X such that $AX = \begin{pmatrix} 1 & 2 \\ 2 & 4 \end{pmatrix}$.
4. Find the cofactors of k_1 and k_2 in the matrix: $\begin{bmatrix} 2 & 4 & 0 \\ 5 & k_1 & 6 \\ 0 & k_2 & 1 \end{bmatrix}$
5. Evaluate the determinant of the matrix: $\begin{bmatrix} -1 & 0 & 3 \\ 2 & 1 & 4 \\ -2 & -3 & -1 \end{bmatrix}$
6. State and prove factor theorem on polynomial.
7. Determine the nature of the roots of $4x^2 + 8x - 5 = 0$.
8. Find the value of 'k' such that the equation $4x^2 + kx + 6 = 0$ has one root = -2.
9. Define indeterminate form and state its different forms.
10. Evaluate: $\lim_{x \rightarrow 0} \frac{1 - \cos 6x}{x^2}$.
11. Test the continuity of the function $f(x) = \frac{x^2 - 9}{x - 3}$ at $x = 3$.
12. Evaluate: $\lim_{x \rightarrow a} \frac{(x+2)^{5/2} - (a+2)^{5/2}}{x - a}$.
13. Find the limiting value of: $\lim_{x \rightarrow 0} \frac{\sin x^0}{x}$.
14. Find the general values of the equation: $\tan ax = \cot bx$.
15. If $S = \{1, 2, 3\}$, then find 2^S .
16. Differentiate between difference and symmetric difference of two sets A & B.
17. Rewrite the following inequality by using absolute value sign $-4 \leq x \leq -1$.
18. Let $A = \{-1, 0, 2, 4, 6\}$ and $f: A \rightarrow R$ be defined by $y = f(x) = \frac{x}{x+2}$, find the range of f.

Group B (long answer questions) (16 × 4 = 64)

Attempt all questions

1. Define improper fractions. Decompose the fraction $\frac{2x^3 - 3}{(2x+3)(x-1)}$ into partial fractions.

2. What are the criteria for the validity of multiplication of two matrices? Is the product of two matrices always commutative? Illustrate your answer with an example.
3. Define symmetric and skew-symmetric matrix. Show that the diagonal elements of a skew-symmetric matrix are zero.
4. Distinguish between identity and equation. Prove that a quadratic equation can not have more than two roots.
5. If α and β are the two roots of $px^2 + qx + r = 0$,

$$\text{prove that: } \sqrt{\frac{\alpha}{\beta}} + \sqrt{\frac{\beta}{\alpha}} + \sqrt{\frac{q}{p}} = 0.$$

6. If -4 is a root of equation $x^2 + px - 4 = 0$, and the equation $x^2 + px + q = 0$ has equal roots, find the value of q .
7. If the quadratic equation $ax^2 + bx + c = 0$ and $bx^2 + cx + a = 0$ have a common root, prove that either $a + b + c = 0$ or $a = b = c$.
8. Prove geometrically: $\lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = 1$.

$$9. \text{ Evaluate: } \lim_{\theta \rightarrow \pi/4} \frac{\cos \theta - \sin \theta}{\theta - \pi/4}.$$

$$10. \text{ If } f(x) = \frac{ax + b}{x + 1}, \quad \lim_{x \rightarrow 0} f(x) = 2, \text{ and } \lim_{x \rightarrow \infty} f(x) = 1, \text{ prove that } f(-2) = 0.$$

11. Define continuity of a function at a point. A function $f(x)$ is defined below;

$$f(x) = \begin{cases} p - 2x & \text{for } 0 \leq x < \frac{3}{2} \\ -3 - 2x & \text{for } x \geq \frac{3}{2} \end{cases}.$$

For what value of p will be the above function continuous at $x = \frac{3}{2}$?

12. What does the general value of a trigonometric equation mean? Find the general values of the equation:

$$\sin 2x \cdot \tan x + 1 = \sin 2x + \tan x.$$

13. Find the general values of the trigonometric equation:

$$\cos^2 \theta - \sin^3 \theta = \cos^2 \theta.$$

14. Prove the following:

$$\text{i. } \overline{A \cap B} = \overline{A} \cup \overline{B}$$

$$\text{ii. } A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$$

15. Define absolute value of a real number x .

$$\text{If } -a < x < a, \text{ prove that } |x| < a.$$

16. Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ be defined as follows:

$$f(x) = x^3 - 1 \text{ and } g(x) = x^2. \text{ Then find}$$

$$(i) \text{ the formula for } f^{-1}.$$

$$(ii) (g \circ f)(x).$$

Best of luck.