D. B. J. College, Chiplun.
FY Sem – II, ATKT (CBCS) Exam- March 2025
Subject: Foundation Course- I
Time: 2 pm to 4.30 pm
(मराठी रूपांतर)

[वेळ: २ तास ३० मि.] [एकूण गुण: ७५]

सूचना: १) सर्व प्रश्न अनिवार्य आहेत. २) उजवीकडील अंक पूर्ण गुण दर्शवितात .
३)आवश्यक वाटल्यास इंग्रजी प्रश्नपत्रिका पहावी .

प्र.१ **अ) योग्य पर्याय निवडा. (कोणतेही आठ)**

१ आर्थिक क्रियाकलापांवरील सरकारी नियंत्रण काढून टाकणे हे _____ म्हणून ओळखले जाते
अ) उदारीकरण ब) जागतिकीकरण क) अ आणि ब ड) खाजगीकरण

२ मतदानाचा हक्क हा मूलभूत_____ हक्क आहे.
अ) नागरी ब) राजकीय क) आर्थिक ड)धार्मिक

३ जीवाश्म इंधनाच्या वाढत्या वापरामुळे खालीलपैकी कोणता वायू कमी होत आहे?
अ) ओझोन ब) कार्बन क)मिथेन ड) नायट्रोजन ऑक्साइड

४ मास्लोचा सिद्धांत _____ शी संबंधित आहे.
अ) आत्मपूर्ती ब) ताण क) आक्रमकता ड) संघर्ष

५ आम्ल पाऊस हा _____ प्रदूषणाच्या हानिकारक परिणामांपैकी एक आहे.
अ) हवा ब) पाणी क) आवाज ड) जमीन

६ रिमोट सेन्सिंग उपग्रहांना _____ म्हणतात कारण ते पृथ्वीच्या दोन्ही ध्रुवीय प्रदेशांवरून एन-एस (N-S) दिशेने जातात.
अ) विषुववृत्तीय कक्षा ब) ध्रुवीय कक्षा क) पर्यावरण ड) यापैकी काहीही नाही

७ कॉर्पोरेट कंपन्यांनी शेतकऱ्यांसोबत काम करणे आणि नफा वाटून घेणे याला _____ म्हणतात.
अ) कंत्राटी शेती ब) कॉर्पोरेट शेती क) खाजगी शेती ड) फक्त क

८ पर्यावरणशास्त्राचे व्यावहारिक दृष्टिकोन म्हणजे _____.
अ) पाणथळ जमीन व्यवस्थापन ब) नैसर्गिक संसाधन व्यवस्थापन क) शहर नियोजन ड) यापैकी सर्व

९ जेव्हा उद्दिष्टांची _____ असते तेव्हा संघर्ष उद्भवतो.
अ) विसंगतता ब) फरक क) निवड ड) प्रेरणा

१० मानवी हक्कांच्या सार्वत्रिक जाहीरनाम्यात (UDHR) घोषणेमध्ये प्रस्तावना आणि _____ कलमे असतात.
अ) ३० ब) ३८ क) ४० ड) ४८

ब) खालील विधाने चूक की बरोबर ते सांगा.(कोणतेही सात)

१ मोबाईल फोनला मेल म्हणतात.
२ हक्कांची संकल्पना मानवी जीवनाच्या सर्व पैलूंचा समावेश करते.
३ नैसर्गिक पर्यावरणामुळे उर्जेचे अक्षय स्रोत उपलब्ध होतात.
४ असंघटित क्षेत्रातील ग्रामीण किंवा शहरी कामगार शोषित आहेत.
५ आव्हाने बदल आणि विकासाच्या संधी प्रदान करतात.
६ समाजीकरणाचे चार प्रमुख घटक आहेत.
७ आंतरराष्ट्रीय कामगार संघटना (ILO) ची स्थापना १९१९ मध्ये झाली.
८ परिस्थितीक मनोऱ्याला ऊर्जा मनोरा असेही म्हणतात.
९ पूर्वग्रहामुळे रूढीवादी माहिती निर्माण होते.
१० शहरांमधील वायू प्रदूषणात रस्ते वाहतूकीचा मोठा वाटा आहे.

प्र.२ जागतिकीकरण म्हणजे काय? जागतिकीकरणाचा भारतीय व्यवसायावर होणारा परिणाम स्पष्ट करा.

किंवा

प्र.२ स्थलांतराची कारणे स्पष्ट करा.

प्र.३ संघर्षांची व्याख्या करा आणि त्याची कारणे स्पष्ट करा.

किंवा

प्र.३ मानवाधिकार म्हणजे काय? भारतातील मूलभूत अधिकार स्पष्ट करा.

प्र.४ परिसंस्थेची व्याख्या करा आणि त्याची संरचना स्पष्ट करा.

किंवा

प्र.४ पर्यावरणीय ऱ्हास म्हणजे काय? पर्यावरणीय ऱ्हासाचे परिणाम स्पष्ट करा.

प्र.५ ताणतणावाचा अर्थ आणि कारणे स्पष्ट करा.

किंवा

प्र.५ **टिपा लिहा. (कोणत्याही तीन)**

अ) उदारीकरणाची संकल्पना

ब) अन्नसाखळी

क) संघर्षांचे प्रकार

ड) पर्यावरणशास्त्र

इ) शेतकऱ्यांची आत्महत्या

D. B. J. College, Chiplun.
FY Sem - II, ATKT (CBCS) Exam- March 2025
Subject: Foundation Course- I
Time: 2 pm to 4.30 pm

[Time: 2 Hr. 30 min.] [Total Marks: 75]

N.B. 1) All questions compulsory.
2) Figures to the right indicate full marks.

Q.1 (A) Choose the correct alternative. (Any eight) 08

1 Elimination of government control over economic activities is known as _____.
a) liberalisation b) globalisation c) a and b d) privatisation

2 Right to vote is a basic _____ right.
a) civil b) political c) economic d) religious.

3 Which of the following gas is depleting because of the increasing consumption of fossil fuels?
a) Ozone b) carbon c) methane d) nitrogen oxide

4 Maslow's theory is related to _____.
a) self-actualization b) stress c) aggression d) conflict

5 Acid rain is one of the harmful effects of _____ pollution.
a) air b) water c) noise d) land

6 Remote sensing satellites are called _____ because they pass over both polar regions of the earth in N-S directions.
a) Equatorial orbit b) polar orbit c) environment d) none of these

7 Working with the farmers by corporate firms and sharing the profit is known as _____.
a) contract farming b) corporate farming c) private farming d) only c

8 Practical approaches of ecology are _____
a) wetland land management b) natural resource management c) city planning d) all of these

9 Conflict arises when there is _____ of aims.
a) incompatibility b) differences c) choice d) stimulus

10 In the Universal Declaration of Human Rights (UDHR)declaration consists of a preamble and ------- articles.
a) 30 b) 38 c) 40 d) 48

Q.1 (B) State weather the following statements are True or False (Any seven). 07

1 Mobile phones are called mails.
2 The notion of rights covers all aspects of human life.
3 Natural environment provides renewable sources of energy.
4 Rural or urban workers in unorganised sectors are exploited.
5 Challenges Provide, an opportunity for change and growth.
6 There are four major agents of socialisation.
7 The International Labour Organisation (ILO) was established 1919.
8 An ecological pyramid is also known as energy pyramid
9 Prejudice leads to in information of stereotypes.
10 Road transport accounts for major share of air pollution in the cities.

Q.2 What is globalisation? Explain the impact of globalisation on Indian business. 15

OR

Q.2 Explain the causes of migration.

Q.3 Define conflictsandexplain its reasons. 15

OR

Q.3 What is human right? Explain fundamental rights in India.

Q.4 Define ecosystem and explain its structure. 15

OR

Q.4 What do you mean by environmental degradation? Explain impact of environmental degradation.

Q.5 Explain the meaning and causes of stress. 15

OR

Q.5 Write a short note on (any 3)
a) Concept of liberalisation
b) Food chain
c) Types of conflicts
d) Ecology
e) farmer's suicide

V.D.J. College, Chipmi

Semester - II ATKT Examination March - 2025

Class :- F.Y.B.Sc. Subject :- Mathematics - II Paper no. II

Date :- 13-03-2025 Time :- 2:00pm to 4:30pm Max. Marks - 75

Time: $2\frac{1}{2}$ hours Marks: 75

Instruction: - 1. All questions are compulsory.
2. Use of calculator is not allowed
3. Figures to the right indicate full marks.

Q1 A] Attempt any ONE. **(8 Marks)**

i) Let A be a finite set and f: $A \to A$ is a function such that $f^2(a) = a$ for $a \in A$. Then show that f is bijective.

ii) Verify explicit formula $S(n,k) = \frac{1}{k!}\sum_{j=0}^{k}(-1)^j\, kc_j\,(k-j)^n$ for n=6, k=4.

B) Attempt any TWO. **(12 Marks)**

i) How many bit strings are there of length eight? Also find (i) How many of them begins with 1? (ii) How many of them ends with two bits 00?

ii) Using pigeonhole principle prove that among any $n^2 + 1$ points within an $n \times n$ square there must exists two points whose distance is at most $\sqrt{2}$

iii) Find the number of minimum ways to choose 8 numbers from 1 to 50 so that all the choices have same sum.

Q2 A] Attempt any ONE. **(8 Marks)**

i) State and prove Pascal's identity.

ii) Find $\varphi(60)$ using Inclusion- Exclusion Principle.

B) Attempt any TWO. **(12 Marks)**

i) Show that if n and k are positive integers, then prove that $\binom{n+k}{k} = \frac{(n+1)}{k}\binom{n}{k-1}$

ii) Find how many positive integers from 1 to 200 which are not divisible by 2 or 3 or 5? Also find number of integers which are divisible by 2 not by 3 or 5.

iii) How many ways are there for eight men and five women to stand in a line so that no two women stand next to each other?

Q3 A] Attempt any ONE. **(8 Marks)**

i) Solve the recurrence relation: $a_n = -2a_{n-1} + 2a_{n-2} + 4a_{n-3}$, such that $a_1 = 0, a_2 = 2, a_3 = 8$.

ii) Let S_n be the set of permutations on N. Then prove that $|S_n| = n!$

B) Attempt any TWO. **(12 Marks)**

i) List all permutations in S_4.

ii) Solve the recurrence relation: $a_n = 5a_{n-1} + 6a_{n-2}$, $a_0 = 7, a_1 = 16$.

iii) Let $\alpha = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ 1 & 6 & 3 & 4 & 5 & 2 & 7 \end{pmatrix}$ and $\beta = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ 5 & 1 & 7 & 3 & 6 & 2 & 4 \end{pmatrix}$ be permutations in S_7.
Then evaluate $(\alpha o \beta)^{-1}, (\beta o \alpha), \alpha^{-1} o\, \beta^{-1}$

Q4 **Attempt any three of the following.** **(15 Marks)**

i) How many different arrangements can be made by using all letters of the word 'MALAYALAM'?

ii) How many minimum people are required to guarantee that at least 2 of them born at exactly the same time with hour, minute and second?

iii) Find number of terms, sum of all coefficients and coefficient of $y^2 z^3$ and $x^3 y w$ in the expansion of $(w + x + y + z)^5$.

iv) Determine whether the permutation $\alpha = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\ 8 & 5 & 2 & 3 & 1 & 4 & 6 & 7 \end{pmatrix}$ is even or odd.

v) Find first five terms of the recurrence relation $a_n = 1.5a_{n-1}, a_1 = 4$.

D. B. J. College, Chiplun.
CBCS. F.Y.B.Sc SEM-II EXAM-Mar 2025
Physics Paper I
Date:- 10/03/2025 Time- 2.00pm to 4.30pm

[Time: 2 ½ Hours] **[Marks: 75]**

N. B.: (1) **All** questions are **compulsory**.
(2) **Figures** to the **right** indicate **full** marks.
(3) Draw **neatlabeled**diagrams wherever **necessary**.
(4) Symbols have usual meaning unless otherwise stated.
(5) Use of **non-programmable** calculator is allowed.

Q. 1 (A) Attempt ANY ONE. **10**

(i) Obtain an expression for longitudinal chromatic aberration (for $u = \infty$).

(ii) Derive an expression for equivalent focal length for the system of two thin lenses, placed co-axially and parallel to each other separated by a finite distance.

(B) Attempt ANY TWO. **10**

(i) Explain methods to reduce spherical aberration using, **(a)** stops, **(b)** crossed lens.

(ii) With the help of a neat labelled diagram, derive ***Newton's lens equation***.

(iii) Define convex lens and concave lens. The radii of curvature of the surfaces of a concave lens are ***20 cm*** and ***40 cm***. What is the focal length of the lens in water of Refractive index ***4/3***, and that of lens material is ***3/2***.

(iv) Explain in brief, **(a)** power of lens and **(b)**the deviation produced by the lens.

Q. 2 (A) Attempt ANY ONE. **10**

(i) Elaborate the structure of human eye. How does it work?

(ii) Describe the complete set up of Wedge shaped film experiment. Determine the positions of constructive and destructive interference bands.

(B) Attempt ANY TWO. **10**

(i) Describe the basic types of the camera **lenses.**

(ii) Optical path difference between the interfering rays in Newton's ring experiment is given by; $\Delta = 2\mu t \pm \frac{\lambda}{2}$; show that the radius of n^{th} dark ring is directly proportional to $\sqrt{n}$; while that of n^{th} bright ring is directly proportional to $\sqrt{2n \pm 1}$.

(iii) Two thin Plano-convex lenses of ***same material*** form Huygen's eye piece. Their focal lengths are ***6 cm*** and ***2 cm***. What is the equivalent focal length of the system?

(iv) A light source having wavelengths λ_1 and λ_2 normally illuminates Newton's ring system that has a lens of radius of curvature 'R'. If n^{th} dark ring due to λ_1 coincides with $(n-1)^{th}$ dark ring due to λ_2; show that the radius of n^{th} dark ring due to λ_1 is given by; $r_n = \sqrt{\frac{\lambda_1 \lambda_2 R}{\lambda_2 - \lambda_1}}$.

Q. 3 (A) Attempt ANY ONE. 10

(i) With the help of neat labelled diagram, explain construction and working of Ruby laser.

(ii) With the help of a neat labelled diagram, explain how the communication system is based on optical fibers.

Q.3 (B) Attempt ANY TWO. 10

(i) Distinguish between spontaneous emission and stimulated emission of radiations.

(ii) Find the ratio of populations of the two states in a laser that produces light of wavelength *6943 Å* at temperature *300 K*.

(iii) Calculate the numerical aperture of a step index optical fiber that have $\mu_{core} = 1.5$ and $\mu_{cladding} = 1.48$. Also determine acceptance angle in air.

(iv) Classify the optical fibers on the basis of refractive index profile.

Q. 4 Attempt ANY THREE. 15

(i) Refractive index of material of glass is *3/2*, it forms a double concave lens of radius of curvature *10 cm* and *30 cm*. find the focal length of a lens.

(ii) Two thin lenses of focal lengths *15 cm*and *20 cm*are placed coaxially parallel to each other at a distance *5 cm* apart. Find the equivalent focal length and plot the cardinal points and planes.

(iii) Two convex lenses of a focal lengths *15 cm* and *10 cm* are at a distance *8 cm* apart. What is the power of a combination?

(iv) To correct chromatic and spherical aberration, a ***Huygen's eyepiece*** of two lensesL_1 of focal length of *6 cm* and L_2 of focal length *2 cm* of same material. Find equivalent focal length of the system.

(v) What do you meant by LASER? Explain the process of; **(a)** pumping and **(b)** population inversion.

(vi) Find the numerical aperture and the acceptance angle of optical fiber withthe material of refractive indices, $\mu_{core} = 1.62$, $\mu_{cladding} = 152$.

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BGS ATKT Examination March-25
F.Y. B.Sc. Sem-II Physics: II
Date: 11/03/2025 Time- 2.00pm to 4.30pm

Duration: 2 hrs 30 min

N.B: (1) All questions are compulsory. Total Marks: 75
(2) Figures to the right indicate full marks.
(3) Draw neat labelled diagrams wherever necessary.
(4) Symbols have usual meaning unless otherwise stated.
(5) Use of non-programmable calculator is allowed.

Q.1 **A]** Attempt **any one** of the following. **(10)**

i) A sinusoidal voltage is applied across a series L-R combination. Obtain an expression for the current through the circuit.

ii) State and explain Thevenin's theorem. Is it possible to obtain Thevenin's equivalent circuit of active network which uses multiple current sources? Justify your answer.

B] Attempt **any two** of the following. **(10)**

i) Obtain the condition of balance for Maxwell's L/C bridge.

ii) In a series LCR circuit, L = 400 μH, R = 10 Ω and C = 25 μF. Find the resonant frequency of the circuit. Also, find the Q-factor at resonance.

iii) State and explain the basic characteristics of an ideal current source.

iv) De Sauty's capacitance bridge has C_1 = 0.47 μF, R_2 = 1200 Ω and R_4 = 800 Ω. Find the value of the other capacitance when the bridge is balanced.

Q.2 **A]** Attempt **any one** of the following. **(10)**

i) Draw a circuit diagram of a full wave bridge rectifier. Explain its working with the help of waveform diagrams.

ii) Explain the input and output characteristics of common-emitter configuration. What do you infer from these characteristics?

B] Attempt **any two** of the following. **(10)**

i) Explain the operation of a single stage transistor amplifier.

ii) In a common-base configuration, α = 0.96. The voltage drops across the load resistance of 2.2 KΩ connected in the collector circuit is 2 V. Find the base current. (Neglect leakage current).

iii) What is voltage regulation? Explain how Zener can be used for voltage regulation.

iv) Find the value of series resistance to be connected when two Zener diodes each of 12 V, 400 mA are connected in series to obtain 24 V regulated output, if the input to regulator circuit is 40 V.

Q.3 **A]** Attempt **any one** of the following. **(10)**

i) Explain why NAND and NOR are called basic building blocks? Explain with logic diagram and truth tables.

ii) What is product of sums (POS) method? Which types of gates are preferred to implement it? Why? **(10)**

B] Attempt **any two** of the following.

i) Determine the decimal numbers represented by the following binary numbers.

(a) 1011.101 (b) 11111111

ii) Prove the following Boolean equation: $A + \bar{A}.B + A.B = A + B$

iii) State and prove De Morgan's first theorem.

iv) Complete the following. Show the conversions.

$(1234)_{10} = (\quad)_2 = (\quad)_{16}$

Q.4 Attempt **any three** of the following. **(15)**

i) Show that for a pure resistance in an AC circuit, the current and the voltage are always in phase.

ii) In a Wien bridge circuit, $R_1 = R_2 = 1\ K\Omega$, $C_1 = C_2 = 0.22\ \mu F$, and $R_4 = 2.2\ K\Omega$. Find the value of R_3 and frequency of the applied voltage needed to balance the bridge.

iii) What is faithful amplification? State and explain the conditions to be fulfilled to achieve faithful amplification in a transistorized amplifier.

iv) In a transistor if collector current is 4.9 mA and emitter current is 5 mA, determine its α and β.

v) What is EXOR gate? Explain with logical statement, logical symbol and truth table.

vi) Convert the following hexadecimal numbers into binary numbers.

(a) ABCD (b) B4D (c) 3AC.2A

(d) DE.AB2 (e) E5.74

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D.B.J. College, Chiplun

Semester-II AT KT Examination March-2025

class:- F.Y.B.Sc. Subject:- Mathematics-I Paper no.

Date:- 12-03-2025 Time:- 2:00pm to 4:30pm Max. Marks-75

Time: 02.30 hours Total Marks: 75

Instructions: 1) All questions are compulsory.
2) Figure to the right indicates full marks.
3) Use of calculator is not allowed.

Q.1 A) **Attempt <u>any one</u> questions of the following.** **(8)**

a) Show that the function $f(x) = \begin{cases} 2x^2 - 1 & for\ x < 1 \\ 4 & at\ x = 1 \\ 4x^3 - 3 & for\ x > 1 \end{cases}$ is not continuous at $x = 1$.

b) Find the value of 'k' of the function $f(x) = \begin{cases} \frac{x^2-6x+8}{x-2} & for\ x \neq 2 \\ k & for\ x = 2 \end{cases}$ so that f is continuous at point $x = 2$.

B) **Attempt <u>any two</u> questions of the following.** **(12)**

a) Find the left hand limit and right hand limit of the function at specified point $f(x) = \begin{cases} 2x - 3\ for\ x > 2 \\ 4x + 1\ for\ x \leq 2 \end{cases}$ and check whether limit exists at point.

b) Prove that $f: \mathbb{R} \to \mathbb{R}$ is defined by $f(x) = \begin{cases} x + 1\ for\ x \leq 1 \\ 4x^2 - 1\ for\ x > 1 \end{cases}$ is continuous at $x = 1$.

c) Prove that $f: \mathbb{R} \to \mathbb{R}$ is defined by $f(x) = |x|$ is not differentiable at $x = 0$.

Q.2 A) **Attempt <u>any one</u> questions of the following.** **(8)**

a) Prove that every polynomial function is differentiable.

b) Find $\frac{dy}{dx}$ of $\cos(x^2 + 4x) + \log(x + y^2) = \sin(3xy^2)$ where y is the function of x.

B) **Attempt <u>any two</u> questions of the following.** **(12)**

a) Let $f: \mathbb{R} \to \mathbb{R}$ be given by $f(x) = \sin(x)$ then prove that $f'(x) = \cos(x)$.

b) Prove that $f: \mathbb{R} \to \mathbb{R}$ is defined by $f(x) = \begin{cases} x.\cos\left(\frac{1}{x}\right) & for\ x \neq 0 \\ 0 & for\ x = 0 \end{cases}$ is continuous at $x = 0$ but not differentiable at $x = 0$.

c) Find the derivative of the function $f(x) = tan^{-1}(x)$ by inverse function theorem.

Q.3 **A)** **Attempt <u>any one</u> questions of the following.** **(8)**

a) Let $f: \mathbb{R} \to \mathbb{R}$ be given by
i) $y = f(x) = e^{ax}$ *where* $a \in \mathbb{R}$ then prove that $y_n = a^n e^{ax}$
ii) $y = f(x) = a^{bx}$ *where* $a > 0$ *and* $b \in \mathbb{R}$ then prove that $y_n = b^n\,(log a)^n\, a^{bx}$

b) Let $f: \mathbb{R}^+ \to \mathbb{R}$ be given by $f(x) = \log(ax + b)$ then prove that $y_n = \frac{(-1)^n\, a^n (n-1)!}{(ax+b)^n}$.

B) **Attempt <u>any two</u> questions of the following.** **(12)**

a) Verify Rolle's theorem of the function $f(x) = x^3 - 3x^2 + 6$ in $[-1, 2]$.

b) Verify Lagrange's mean value theorem of the function $f(x) = 4x^2 - 5x + 6$ in $[2, 4]$.

c) Verify Cauchy's mean value theorem of the function $f(x) = 4x^2 - x^3$ *and* $g(x) = 1 + x$ in $[0, 2]$.

Q.4 **Attempt <u>any three</u> questions of the following.** **(15)**

a) Find 4^{th} order derivative of $x^3\, 5^x$.

b) Evaluate the following limit $\lim_{x\to\infty} \frac{\log(x+1)}{\sqrt{x}}$.

c) Find the derivative of $f(x) = \sin(-x^2 - x)$ if exist by using chain rule.

d) Find the limit of the function $f(x) = \lim_{n\to\infty} \frac{x^3+3x+9}{7x^3-15}$.

e) Find the derivative of $f(x) = \log(\cos(a^x))$ if exist by using chain rule.

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D.B.J. College, Chiplun
Semester - II ATKT Examination March-2025
Class:- F.Y.B.Sc. Subject:- Zoology-I Paper No. I
Date:- 12-03-2025 Time:- 2.00pm to 5.00pm Max. Marks-100

Time: Three hours. **Marks: 100**

N. B. 1) All questions are **compulsory.**
2) All questions carry **equal marks.**
3) **Draw** neat labeled **diagrams** wherever **necessary.**

Q. 1. A) Fill in the blanks by choosing the correct option given in the bracket. **05**

a)..... is defined as the total number of individuals per unit area of volume.
i) Natality ii) Population density iii) Mortality iv) Fecundity

b) The primary consumers are .....and capable of converting plant material into energy.
i) Herbivores ii) Omnivores iii) Carnivores iv) Saprophytes

c) .....is usually absent in ponds but is present in large lakes.
i) Littoral zone ii) Limnetic zone iii) Euphotic zone iv) Profundal zone

d) In Mauritius .....was the first animal to become extinct in 1662.
i) Kiwi ii) Dodo iii) Peregrine Falcon iv) Mountain Quail

e) The One horned Rhino is representative animal of.....National Park.
i) Kaziranga ii) Silent Valley iii) Bandipur iv) Gir

Q. 1. B) Match the columns I and II and rewrite. **05**

Column I	Column II
i) Bell shaped pyramid	a) Nostoc
ii) Convex shaped curves	b) Positive interactions
iii) Nitrogen fixation	c) Gharial
iv) Mutualism	d) Stable population
v) Jim Corbett National Park	e) Low Mortality

Q. 1. C) State whether True or False. **05**

a) Niche describes the relational position of a species in an ecosystem.
b) Lag phase of J- shaped growth curve, shows growth of the population is rapid.
c) The energy pyramids are always upright.
d) Turmeric is not native to Indian subcontinent.
e) Bandipur National Park is located in the Tamilnadu.

Q. 1. D) Answer the following in one sentence only. **05**

a) Define emigration.
b) What is age structure?
c) Give two names of National parks in Maharashtra.
d) Give full form of IUCN.
e) Define ecotourism.

(P.T.O.)

Q. 2. A) Define population dispersal. Give an account on population distribution patterns. 10

OR

A) Describe the mechanism of Human census and its significance. 10

Q. 2. B) Write short notes on (any two) 10

a) Population growth patterns.
b) Age structure pyramids.
c) Methods of estimating population densities.
d) Types of natality.

Q. 3. A) What are ecological pyramids? Describe different types of ecological pyramids. 10

OR

A) Give an account on fresh water ecosystem and its types. 10

Q. 3. B) Write short notes on (any two) 10

a) Abiotic components of ecosystem.
b) Positive animal interactions with suitable examples.
c) Impact of temperature on biota.
d) Sulphur cycle.

Q. 4) Answer any two of the following: 20

a) Describe the objectives and principles of ecotourism.
b) Describe briefly the Jim Corbett National Park with two representative animal species.
c) Explain in detail the Project Tiger.
d) Give an account on the flora, fauna and one representative animal species of Silent Valley National Park.

Q. 5) Write short notes on (any four) 20

a) Mortality.
b) Types of Niche.
c) Oxygen cycle.
d) Survivorship curves.
e) Tadoba National park.
f) Biopiracy.

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