

FY. BA/B.Sc/B.Com

Reg. / ATK7

Sem. I

RIZVI COLLEGE OF ARTS, SCIENCE AND COMMERCE

16/10/2025

SUB: INDIAN KNOWLEDGE SYSTEM (IKS) 2025-2026

SEM I

30 MARKS

1 HOUR

ALL QUESTION ARE COMPULSORY

Q1. Attempt any TWO question

(6 marks)

1. Define the Indian Knowledge System and list its characteristic features.
2. Explain Macaulay's Education Policy highlighting its positive aspects.
3. Why should the Indian Knowledge System and ancient traditions be revisited?
4. Discuss the education systems of Madarasa in the Indian context.
5. Define IKS and describe its contributions to the development of modern science.

Q2. Attempt any THREE question

(12 marks)

1. Discuss the diagnostic techniques of Ayurveda.
2. Explain the importance of Alchemy.
3. Write about the Logic and it's usefulness in India.
4. Elucidate the Arthashastra and its contribution in governance.
5. Discuss the limitation of logic.
6. Discuss the drugs in disease management.

Q3. Attempt any THREE question

(12 marks)

1. Explain aesthetics and it's different art forms.
2. Describe the architecture of ancient India.
3. Discuss the importance of Yoga as part of IKS
4. Explain the problems of banking systems in India.
5. Describe the strategic studies and six sports in ancient Indian knowledge.
6. Discuss the emerging trends in banking.

251014

NS 2125

FYBSc

Communication Skills in English

Semester I

Time: 1 hour

Total Marks: 30

Q1. Write a short note on any two of the following in about 100 words each: 10 marks

- i) Define oral communication and state its advantages.
- ii) Examine the types of non-verbal communication with examples.
- iii) Explore how technology improves business communication.
- iv) Summarize the characteristics of effective speech.

Q2. Read the passage given below and answer the questions that follow: 10 marks

In 1859, Charles Darwin published evidence that species change over time. His observations during the voyage on the HMS Beagle led to the Theory of Evolution. Darwin explained that populations evolve because individuals with helpful traits survive and reproduce, a process called natural selection. Organisms adapt to their environments, and over generations, these adaptations change the characteristics of a population. Traits can be physical, like hair color, or behavioral, like birds building nests. Darwin's work explains the diversity of life on Earth.

Today, scientists know that genes control inherited traits, and natural selection changes the frequency of these genes over time. Fossils provide direct evidence of evolution, showing links between past life-forms, such as fish to amphibians, reptiles to birds, and reptiles to mammals. Darwin's work explains the diversity of life. Modern science shows that Earth is about 4.5 billion years old, life has existed for most of this time, and all living organisms evolved from simpler forms.

1. Who published evidence of evolution in 1859? 1 mark
2. What ship did Darwin travel on? 1 mark
3. What is natural selection? 1 mark
4. Why do organisms adapt? 1 mark
5. How old is the Earth according to scientists? 1 mark
6. How do fossils help scientists? 1 mark
7. **Identify the tense of the following statement.** 1 mark
 - i) All living organisms evolved from simpler forms.
8. **Change the following into Simple Past tense.** 1 mark
 - i) Darwin's work explains the diversity of life on Earth.
9. **Add a question tag** 1 mark

i) Organisms adapt to their environment.

10. Write antonyms of the following

1 mark

i) Modern ii) Life

Q3. Attempt any one of the following:

10 marks

1. You are Rayan/Rani Ahuja, residing at 45, Green Valley Road, Pune. You came across an advertisement in The Times of India dated 15 September 2025, announcing a vacancy for the post of Marketing Executive in a reputed organization. Draft a formal job application, along with your complete biodata, in about 125–150 words.

Or

2. You wish to pursue an undergraduate degree in Computer Science and Artificial Intelligence at your chosen university. Prepare a Statement of Purpose (SOP) in 150–200 words, outlining your academic qualifications, career goals, reasons for selecting this course and university, and the manner in which you propose to contribute to the university community.

251006

FY BSc - Chem

NS 2125

RIZVI COLLEGE OF ARTS, SCIENCE AND COMMERCE
 F.Y.B.SC CHOICE BASED (NEP) REGULAR SEMESTER I CHEMISTRY
 BASICS IN PHYSICAL, INORGANIC AND ORGANIC CHEMISTRY-I
 CODE :- M3-1

(Time: 1 hours)

Total Marks: 30

- N.B.: (1) All questions are compulsory.
 (2) Figures to the right indicate full marks.
 (3) Use of log table/ non-programmable calculator is allowed.

Q1 A Attempt any 4 out of 6

04M

- Liquids are _____
 a) Compressible b) Non compressible c) Compressible at low temperature and non-compressible at high temperature.
- Molality method of expressing concentration is _____ of temperature.
 a) Independent b) Dependent c) Dependent at low pressure
- Mole fraction of solvent $X_A=0.4$, then its mole fraction of solute X_B is _____
 a) 0.6 b) 0.4 c) 1.0
- The rate of reaction is expressed as rate = $K [A]^2$, then its order of the reaction is _____
 a) Two b) One c) Zero
- Poise is the unit of _____
 a) Viscosity b) Surface tension c) Fluidity
- For first order reaction, the time for half reaction is 10 secs, then the rate constant is _____ sec^{-1} .
 a) 0.0693 b) 69.3 c) 6.93

Q1 B Attempt any 2 out of 4

06M

- Explain a) Half-life of a reaction b) Molecularity of reaction
- What is Ostwald's viscometer? Where it is used and give its unit of measurement.
- 12.5 grams of Sodium chloride is dissolved in water to make 500 ml of solution. Calculate Molarity of this solution. (Na=23, Cl=35.5)
- Calculate the time required for the completion of 25% of a first order reaction, whose rate constant is 0.002 sec^{-1} .

Q2 A Attempt any 4 out of 6

04M

- Number of electron present in Ca^{2+} is _____ (Ca atomic number = 20)
 a) 10 b) 14 c) 12
- Group 4 belongs to _____ block elements
 a) s block b) p block c) d block.

00020

RIZVI COLLEGE OF ARTS, SCIENCE AND COMMERCE
F.Y.B.SC CHOICE BASED (NEP) REGULAR SEMESTER I CHEMISTRY
BASICS IN PHYSICAL, INORGANIC AND ORGANIC CHEMISTRY-1
CODE :- M3-1

3. _____ Orbitals have minimum energy.
a) 3d b) 4s c) 5s
4. Number of protons present in Si^{4+}
a) 14 b) 28 c) 42
5. The shell with $n=3$ is commonly referred to as _____ shell.
a) K b) L c) M
6. Potassium with atomic number 19 belongs to which period.
a) First b) Second c) Third.

Q2 B Attempt any 2 out of 4

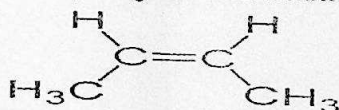
06M

- Calculate the number of proton, neutron and electron in the following species.
a) Ca^+ b) C c) Cl^-
- Write the electronic configuration for the following elements.
a) Fluorine b) Boron c) Nitrogen
- Arrange the following orbital in the increasing order of the energy using $n+l$ rule.
4s, 3d, 4p, 5s, 4f
- Calculate Z_{eff} for 4s electron in iron atom (atomic number for Iron = 26)

Q3 A Attempt any 4 out of 6

04M

- IUPAC name of $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{CH}_3$ compound is _____.
a) Propane b) Ethane c) Hexane
- IUPAC name of Formic acid is _____.
a) Ethanoic acid b) Methanoic acid c) Propanoic acid.
- CH_3COCH_3 , the functional group present is _____.
a) Aldehyde b) Ketone c) Acid.
- Identify the geometrical isomerism for the given structure.



- a) cis-2-butene b) trans-2-butene c) does not have geometrical isomerism.
- When all the groups attached to carbon is different than the compound is optically active and is called as _____.
a) Chiral compound b) Super compound c) Inorganic compound.
- Eclipsed form of Ethane in Newmann projection formula has _____ energy

a) High b) Low c) Zero.

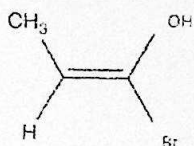
Q3 B Attempt any 2 out of 4

06M1

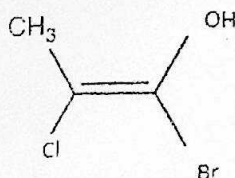
1.

Identify the E and Z isomers in the following compounds.

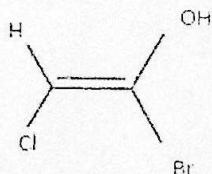
a)



b)

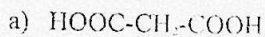


c)

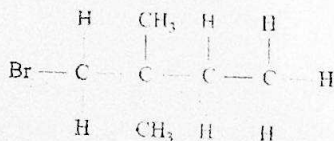


- Explain Newmann projection formula with the help of ethane molecule.
- Draw the structure of the following organic compounds
 - 2-Propanol
 - Butanoic acid
 - 2,4,6-trimethylhexane.
- Complete the following:-

Write the IUPAC name of the following organic compounds.(any one)

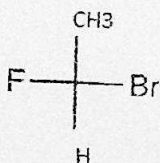


b)

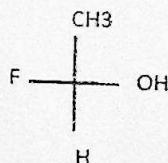


Identify R and S in the compound given below (any one)

a)



b)



251008

NS 2/25

FYBSC (Physics Major)
Semester I (NEP 2020)
End Semester Examination
Introduction to Mechanics (Paper I)

Total marks: 30

Duration: 1 hour

Notes:-

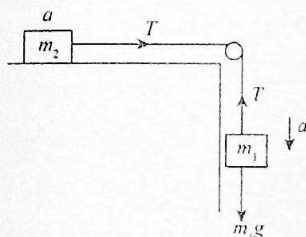
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Draw Neat diagrams wherever necessary.
4. Symbols have usual meaning unless otherwise stated.
5. Use of non-programmable calculator is allowed.

Q. 1 (A) Attempt any **TWO** of the followings:- (10 Marks)

1. Explain inertial and non-inertial frame of reference.
2. What is friction? Write advantages and disadvantages of friction.
3. State and prove work energy theorem.
4. Explain the concept of pseudo force with suitable example.

Q. 1 (B) Attempt any **ONE** of the followings:- (5 Marks)

1. A 6 kg (m_2) block rests on a smooth frictionless table. A string attached to the block passes over a frictionless pulley, and 3 kg mass (m_1) hangs from the string as shown in below figure. Find the acceleration 'a' and tension 'T' in the string.



2. A ball of is dropped from a height h, reaches the ground with speed of \sqrt{gh} . Calculate the work done by air friction.

Q. 2 (A) Attempt any **TWO** of the followings:- (10 Marks)

1. Obtain the relationship between torque and angular momentum of particle.
2. What is damped harmonic oscillator? Obtain the differential equation of a damped harmonic oscillator.
3. Show that the oscillations of torsion pendulum are simple harmonic oscillations.
4. Explain the principle of conservation of angular momentum.

Q. 2 B) Attempt any **ONE** of the followings:- (5 Marks)

1. Three particles of masses 1 kg, 2 kg, and 3 kg are situated at A(4, 2, 1), B(0, 2, 5), and C(3, 1, 0). The force acting on the particles are $\vec{F}_1 = 2\hat{i} + 2\hat{j}$, $\vec{F}_2 = 3\hat{i} + 5\hat{k}$, and $\vec{F}_3 = 3\hat{j} + 4\hat{k}$ respectively. Calculate the position and acceleration of the center of mass.
2. A pendulum of length 80 cm. Find its period when it is suspended in a stationary lift and moving upward with constant velocity.

————— ✕ ————— α —————

251007

FYBSc Maths

NS 2125

FYBSC SEMESTER I (NEP 2020)

END OF SEMESTER EXAMINATION OCTOBER 2025

MAJORMATHEMATICS: ALGEBRA - I AND CALCULUS - I

Duration : 1 hr

Marks : 30

N.B: 1) Attempt any TWO questions out of THREE.

2) Figures to the right indicate full marks.

Q.1 Attempt any **THREE** out of **FOUR**. (5 mark each)

15

- (a) Verify whether the function f is bijective, where $f: \mathbb{R} \setminus \{3\} \rightarrow \mathbb{R} \setminus \{0\}$ is given by $f(x) = \frac{1}{x-3}$
- (b) Prove by the principle of finite induction that, if $A = \begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$, then $A^n = \begin{bmatrix} 1 & n \\ 0 & 1 \end{bmatrix}$, $n \in \mathbb{N}$.
- (c) Prove: (i) $a + b = a + c \Rightarrow b = c$
(ii) $b + a = c + a \Rightarrow b = c$ for all $a, b \in \mathbb{R}$
- (d) State and prove the Arithmetic-Geometric mean inequality.

Q.2 Attempt any **THREE** out of **FOUR**. (5 mark each)

15

- (a) Compute the gcd of 1008 & 357 and express it as $1008m + 357n$, where $m, n \in \mathbb{Z}$.
- (b) Prove that "The congruence modulo n " is an equivalence relation.
- (c) Show that if a sequence converges then it converges to a unique limit.
- (d) Show that if a sequence $x_n \rightarrow p$ then $cx_n \rightarrow cp$, $c = \text{constant}$

Q.3 Attempt any **THREE** out of **FOUR**. (5 mark each)

15

- (a) If $a \equiv b \pmod{n}$ then for any non-zero integer 'x'
 - (i) $a + x \equiv b + x \pmod{n}$
 - (ii) $a - x \equiv b - x \pmod{n}$
 - (iii) $a \cdot x \equiv b \cdot x \pmod{n}$

(b) Prove that $\sqrt{15}$ is an irrational number by using Rational Root theorem.

(c) Solve the differential equation $(x - 8y)dx - 8xdy = 0$

(d) Solve the differential equation $\frac{dy}{dx} + \frac{2xy}{(1+x^2)} = \frac{4x^2}{(1+x^2)}$

251007

FY BSc - Botany
Plant Science.

NS 2125

Rizvi Education Society's

RIZVI COLLEGE OF ARTS, SCIENCE AND COMMERCE
SEMESTER- I, (NEP2020) REGULAR/ ATKT EXAMINATION SEP-OCTOBER, 2025

SUBJECT: BOTANY
(For both Major & Minor)

CLASS: F.Y.B.Sc.

DATE:

TIME: 1:00 Hour

MARKS: 30

N.B:

- Attempt **any two** questions out of four questions.
- All questions carry equal marks.
- Draw **neat and labelled** diagrams wherever necessary

Q.1) Answer the following:

- A. Compare climbers and creepers. Give examples and explain how their structure supports their growth 08 M
- B. What are tubers? Discuss the nutritional value of tubers. 07 M

Q.2) Answer the following:

- A. Give a detailed account of *Rafflesia* and its parasitic nature. 08 M
- B. Describe any two plants used in perfume industry. 07 M

Q.3) Answer the following:

- A. Why is Chakramuni considered a "multivitamin plant"? 08 M
- B. How does a pitcher plant attract and trap its prey? 07 M

Q.4) Answer the following:

- A. What is Hydroponics? How does it differ from traditional soil-based agriculture? 08M
- B. How can aesthetic botany be applied to landscape design and gardening? 07 M

FYBSc: Life processes

N.B: 1. Attempt any two questions out of four

2. Figures to the right indicate full marks.

3. Draw neat and labelled diagrams wherever necessary.

- Q. 1 Write short note on the following:** **15**
- a) Explain sol-gel theory of amoeboid movement 05
 - b) Cilliary movement in Paramecium. 05
 - c) Ammonotelic animals 05
- Q. 2 Write short note on the following:** **15**
- a) Budding in Hydra 05
 - b) Irritability 05
 - c) Describe the autotrophic and heterotrophic nutrition. 05
- Q. 3 Answer the following:** **15**
- a) Describe the aerobic and anaerobic respiration. 08
 - b) Explain conduction of nerve impulse 07
- Q. 4 Answer the following:** **15**
- a) Explain gametogenesis. 08
 - b) Explain the any two types of circulating fluids. 07

251015

[Time : One Hour]

NST 2125

[Marks : 30]

- NB :
1. Attempt any Three Questions
 2. All questions carry equal marks.
 3. Figures to the right indicate maximum marks.

1. Analyse the basic structure of the Indian Constitution. [10]
2. Describe the different fundamental rights enshrined in the Indian Constitution. [10]
3. Classify the jurisdiction of the High Court and explain in detail the jurisdiction. [10]
4. Explain the origin and evolution of Public Interest Litigation in India. [10]

FYBSc- Envnt. Mgt

251015

Class: FYBSC Semester: I

NS 2/25-

Subject: Environmental management and sustainable development (VEC)

Time: 1 Hour

Marks: 30

Q. 1. Description questions (Attempt any three out of four)

1. Explain food chain in the ecosystem in the detail. (10)
2. Write meaning and importance of biodiversity. (10)
3. Write a detail note on Chipko movement. (10)
4. Explain Causes of ozone layer depletion and it's effects on human and ecosystem. (10)