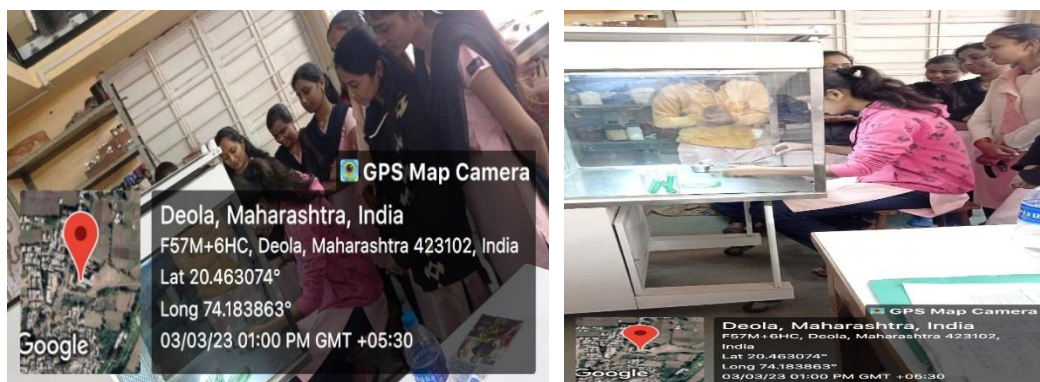


Experimental, Participative Learning and Problem Solving 2022-23

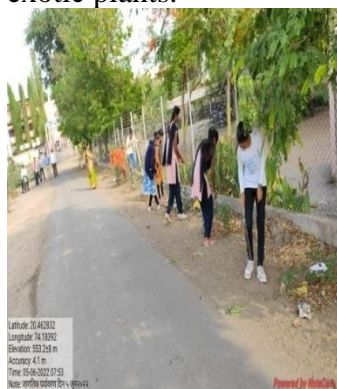
1.Experimental Learning:



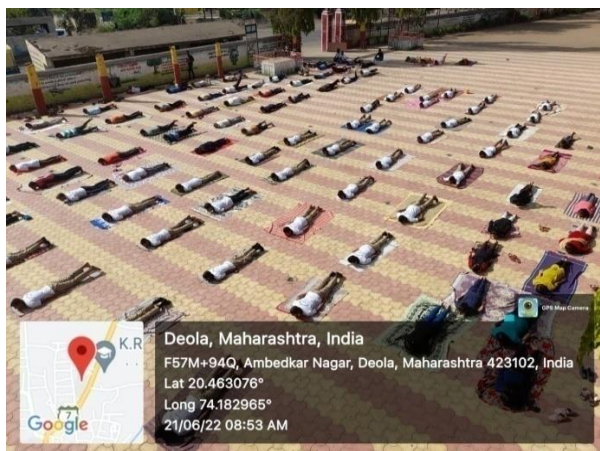
Students performing Practical in laboratories

2. Participative Learning:

Cleanliness at College campus - On the Occasion of World Environmental day NSS volunteers planted different types of plants and also celebrates birthdays of plants which is planted in previous year. NSS District coordinator gives a information about a Indigenous and exotic plants.



International Yoga Day-International Yoga Day was celebrated on 21st June, on this occasion, Hon. Principal HitendraAher guided to the student.All the staff of the college, and all the students were present on this yoga day, all did supplementary exercises for yoga under the guidance of Yoga Teacher Shri SagarAher,



Tree planting and seed planting (16/07/2022) - On the occasion 75th Anniversary of Indian Independence NCC, student planted 75 trees and also collected more than 2500 seeds of different plant varieties & plant has seed with seed blab.



Guinness Book of World records 2022(15/08/2022)-Our students, NSS volunteers participated in Guinness Book of World record- largest number of Man holding national flag by NSS SPPU Pune



National Sports Day(29/08/2022) On 29 August 2022, National Sports Day was celebrated. Principal HitendraAher guided the students in depth about hockey wizard Major Dhyan Chand and started the walking sport by showing the green flag. The college teachers and students enjoyed the program heartily. Thus the birth anniversary of Major Dhyan Chand who won a gold medal for India in the Olympics was celebrated.



Ganeshurthi / Idol collection campaign (9/09/2022) -On 9th Sept 2022, the NCC student collected Lord Ganesh idol, from their surrounding areas.



NSS Day (24/09/2022) -On the occasion of NSS day volunteers planted saplings in college campus and on Sarswatiwadi hill.



Swachhta Abhiyan(2/10/2022)-On October 2nd 2022, Mahatma Gandhi Jayanti was celebrated by cleaning the college and premises under swachhataAbhiyan



Commerce Association (14/10/2022)



Run for Unity(31/10/2022) - on the birth anniversary of Iron man Sardar Vallabhbhai Patel. NCC student organized “EktaDoud” to spread her message of National Unity college staff and student were participated.



Science Association (7/11/2022)



Date of the Program- 07 Nov.2022, Guest Invited- Dr.Umesh J. Tupe (Viceprincipal, Shirsondi College, Shirsondi,Tal-Malegaon,Dist-Nashik , Subject-Science and Research
Number of the Beneficiary Students-178

Legal awareness Program (9/11/2022)



Hon. Judge P.K. Mutkule aware students about Shinde‘Women right to safety and equality’



Introductory lecture by Dr. Deepika S.



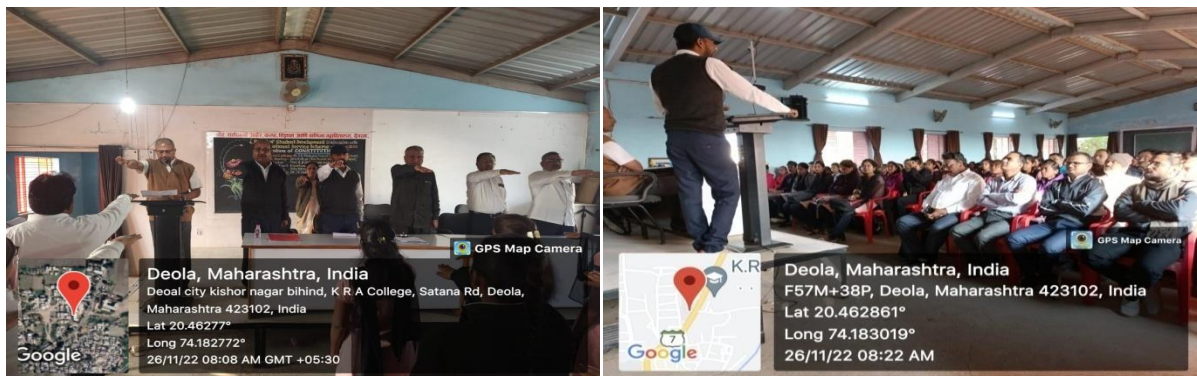
Adv. Hemangi Aher guide about ‘Right to equalityVote of thanks by Dr. JaymalaChandratregiven to women by the Indian Constitution’



New voters registration campaign(10/11/2022)-The students completed their 18 years have registered as a voters.



Constitution Day (26-11-2022)-After worshipping the Constitution, Prof. A. A. Borse's lecture was organized on the topic "Constitution of India". In the beginning, everyone read the preamble of the constitution. Students were remaining present.



Fitness Camp (01/12/2022)-Fitness Camp for men and women was organized by Deola college .



International Aids Day (01/12/2022) -On 1stDec 2022, World Aids Day was celebrated by arranging the rally under guidance of Hon. Principal HitendraAher.



Special Camp of National Service Scheme –A special camp was organized in adopted village Rameshwar during 21/12/2022 to 27/12/2022. during the camp the cleanliness and repairing drive in Dr Daulatrao Aher garden and the temple road was organized. The water body at Sahsriling was cleaned properly. The vanrai bund was constructed on Kolthi River.



Ramanujan Quiz Competition-118 students were participated in Ramanujan Online quiz competition held on 21 December 2022 in KarmaveerRamraojiAher College of Arts, Sciences and Commerce,organized by department of Mathematics in which the first 3 students were awarded in the Annual gathering.



Nirbhay Kanya Abhiyan (16/01/2023) -Dr. VidyaSonawane interacted with the students while guiding them on yoga practice and balanced diet. Karate instructor Mr. Nilesh Gupta trained the students in self-defense with demonstration.



Industrial visit Department of Commerce



3.Problem Solving

3/6/22

Kar. Ramraoji Aher Arts, Science & Commerce College Deola (Nashik)
(Savitribai Phule Pune University)

Jr. Sup. Sign. ↓
R. R. R. R.

2021-22 Internal Examination January 2022

10
10

Semester: II Class: F.Y.B.Sc. Time: 1 Hr. Total Marks: 10

Seat No. 02 Seat No. (In Words): TWO Name: - Aher Ashwini Dilip

Subject: CH-202 Analytical Chemistry

Instructions: 1. All Questions are compulsory. 2. Figures to the right indicate full Marks.

Q.1. Write correct option in the box in front of question: (5)

- 1) SI unit of temperature is.....
(A) K (B) K (C) °C (D) Cal B
- 2) The component not associated with pH meter is.....
(A) Set buffer (B) Photovoltaic cell
(C) Temperature Probe (D) Slope Control Knob B
- 3) Which colour is observed for test of Nitrogen in sodium fusion test?
(A) Purple (B) White (C) Colourless (D) Green D
- 4) The term pH is defined as.....
(A) $-\log_{10}[C_{H^+}]$ (B) $\log[H^+]$ (C) $-\log_{10}[H^+]$ (D) $\log_{10}[m^+]$ C
- 5) Which one is the strongest electrolyte in the following?
(A) NaCl (B) CH_3COOH (C) NH_4OH (D) AgCl A

Q.2. Answer the following: (5)

- 1) What is the test for sulphur in qualitative analysis?
- 2) Define : Molarity
- 3) Define : Empirical Formula
- 4) Give any two advantages of glass electrode.
- 5) Calculate pH of solution, if H^+ ion concentration is $1 \times 10^{-4} M$.

1)

Test	Observation	Inference
Test For Sulfur 1) 1ml Sodium fusion extract + 1 drop of NaOH + 4 drops of Sodium nitroprusside	purple colour	Sulphur is present

2) Molarity :- It is defined as the no. of moles of solute per unit volume is called as the molarity.
 $\therefore \text{Molarity} = \frac{\text{No. of moles of solute}}{\text{unit Volume of solution}}$

3) Empirical formula :- It is defined as the ratio of atom of molecules, is called as empirical formula.

4) Advantages of glass electrode :-

- i) It is easy to operate.
- ii) It is used in oxidizing & reducing solution.
- iii) It is used for pH value ranging from 1 to 12.
- iv) It is used in colour, turbid and colloidal.

5) $[H^+] = 1 \times 10^{-4} \text{ M}$ ----- given

$$\text{pH} = -\log_{10} [H^+]$$

$$\text{pH} = -\log_{10} [1 \times 10^{-4}]$$

$$= -\log_{10} [4.0000]$$

$$= -[-4]$$

$$\text{pH} = 4$$

\therefore pH of the solⁿ is 4.

DEOLA EDUCATION SOCIETY'S
K.R.A. ARTS SCIENCE AND COMMERCE COLLEGE DEOLA
TAL:-DEOLA DIST:-NASHIK

TERM END EXAMINATION JAN. 2022 (CBCS Pattern 2019)

08/10

Name of the Student :- Shekhawat Khushi Ranveersingh Roll No / Seat No :- 67

CLASS:- T.Y.B.Sc. SUB:- PHYSICS (Classical Mechanics)

PAPER:- III

Sem :- V

Max Marks :- 10

N.B. 1. All questions are compulsory.

2. All questions carry equal marks.

Que:-1. Fill in the blanks.

1. When a particle of mass m and having charge q and velocity v enters in the electric field perpendicular to the field direction, then the path of particle will be parabola.

2. A system in which all the forces acting on it are derivable from the potential energy functions is called as Centre of Mass system.

3. The property of an object at rest to remain at rest is known as inertia.

Que:-2. State whether the following statements are true or false.

1. When net external force acting on the particle is zero, then its linear momentum is conserved. True

2. Three objects of different masses placed along x-axis, then centre of mass also lies on y-axis. False

3. The drift velocity of particle in the crossed electric and magnetic field is perpendicular to both fields. True

Que:-3. Solve the following examples.

1. What force is required to produce an acceleration of 2 m/s^2 on a mass of 2 Kg .

2. A charged particle having charge $2 \times 10^{-9} \text{ C}$ enters in the magnetic field of induction $4 \times 10^{-4} \text{ T}$ with velocity $3 \times 10^4 \text{ m/s}$ with an angle 30° with the field. Find the force acting on the particle.

3. A system of two particles have masses 10 Kg and 15 Kg . What is the reduced mass of the system.

4. The satellite revolves in circular orbit around the earth at a height 10000 Km . above the surface of the earth. Find its orbital velocity.

Q.3. 1)

$$a = 2 \text{ m/s}^2, m = 2 \text{ kg}$$

$$F = ma$$

$$F = 2 \times 2$$

$$\therefore F = 4 \text{ N}$$

3) $m_1 = 10 \text{ kg}$, $m_2 = 15 \text{ kg}$.
 \therefore Reduce mass of the system is.

$$R = \frac{m_1 m_2}{m_1 + m_2}$$

$$\therefore R = \frac{10 \times 15}{10 + 15} = \frac{150}{25} = 6$$

$$\therefore R = 6 \text{ kg}$$

2) given :- $q = 2 \times 10^{-9} \text{ C}$
 $B = 4 \times 10^4 \text{ T}$
 $v = 3 \times 10^4 \text{ m/s}$
 $\theta = 30^\circ$

we know that,

The Magnetic Force is

$$F = q(v \times B)$$

$$\therefore F = qvB \sin \theta$$

$$\therefore F = (2 \times 10^{-9})(3 \times 10^4)(4 \times 10^4) \sin 30$$
$$= 2 \times 3 \times 4 \times 10^{-9} \times \frac{1}{2}$$

$$\therefore F = 12 \times 10^{-9} \text{ N/m}^2$$

4)



given:-

$$r_e = 6370 \text{ km}$$

$$R_e = 10000 \text{ km}$$

DEOLA EDUCATION SOCIETY'S
K.R.A. ARTS SCIENCE AND COMMERCE COLLEGE DEOLA
TAL:-DEOLA DIST:-NASHIK

TERM END EXAMINATION JAN.2022 (CBCS Pattern 2019)

Name of the Student :- Shekhawat Khushi Ranveersingh

Roll No / Seat No :- 57

CLASS:-T.Y.B.Sc. SUB:-PHYSICS (Atomic And Molecular Physics)

PAPER:- IV

Sem :- V

Max Marks :- 10.

N.B. 1. All questions are compulsory.

2. All questions carry equal marks.

Que:-1. Fill in the blanks.

1. Vector atom model is based on the concept of orbital angular momentum.
2. Pauli's exclusion principle states that two electrons in the same orbit have opposite spin.
3. The quantity $(2S+1)$ is called Spin Multiplicity.

Que:-2. State whether the following statements are true or false.

1. Thomson's atomic model failed to explain the stability of an atom. True
2. Total energy of an electron decreases as it goes away from the nucleus. False
3. According to Sommerfeld, electron revolves in an elliptical orbit with the nucleus at one of the Focus. True

Que:-3. Answer the following questions.

1. What is the meaning of space quantization?
2. State four quantum numbers.
3. Write the electronic configuration of fluorine and neon.
4. If $L=2$, $S=1/2$, then write atomic states.

Q.3) 1) Space quantization:-

The orbit spin in quantized space is called space quantization

2) Four quantum numbers

(i) spin quantum number

$$s = \sqrt{s(s+1)} \quad (2s+1) = \pm \frac{1}{2} \quad \therefore s = 1, 0, -1, -\frac{1}{2}$$

(ii) Orbital quantum number

$$l = \sqrt{l(l+1)} \quad 2l(l+1) = \pm 1 \quad l = 0, 1, 2, 3, \dots$$

(iii) spin orbital quantum number

$$s^* = \sqrt{s(s+1)} \quad l^* = \sqrt{l(l+1)}$$

$$\therefore J^* = L^* + s^* \quad , \quad j = \pm 1 \text{ or } 0$$

(iv)

3)

i) Fluorine = 9

\Rightarrow Electronic configuration = $1s^2, 2s^2, 2p^5$

ii) Neon = 10

\Rightarrow Electronic configuration = $1s^2, 2s^2, 2p^6$

4) $L = 2, \quad s = \frac{1}{2}$

$$\therefore J_1 = L + s \quad \& \quad J_2 = L - s$$

$$J_1 = 2 + \frac{1}{2} \quad \& \quad J_2 = 2 - \frac{1}{2}$$

$$\therefore J_1 = \frac{4+1}{2} \quad \& \quad J_2 = \frac{4-1}{2}$$

$$\therefore J_1 = \frac{5}{2} \quad \& \quad J_2 = \frac{3}{2}$$

$$\therefore J = \left[\frac{5}{2}, \frac{3}{2} \right]$$



Aher

Principal

Kar. Ramraoji Aher Arts, Sci. & Comm. College, Deola (Nashik)