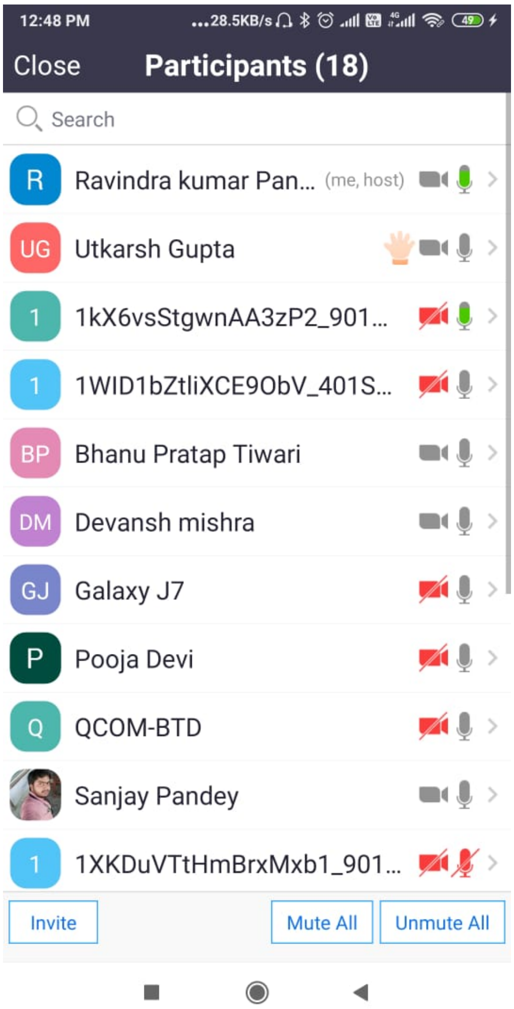
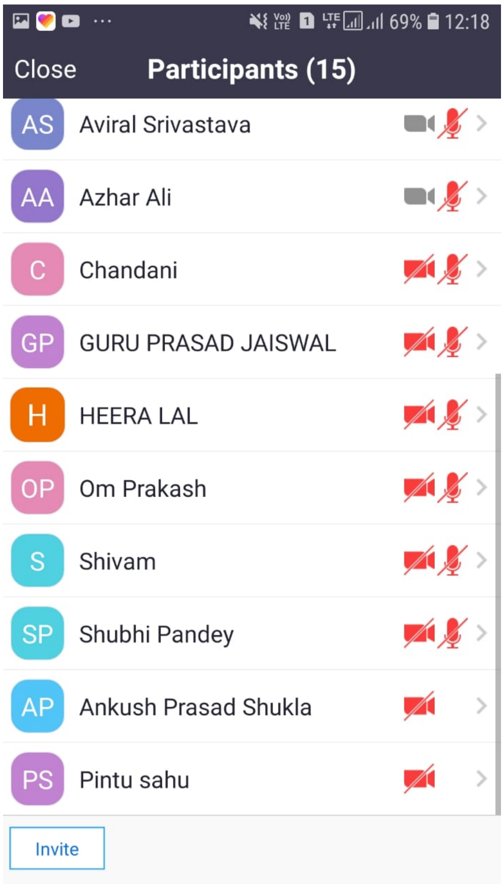
M.L.K.P.G. College, Balrampur
Online classes
Faculty of Science

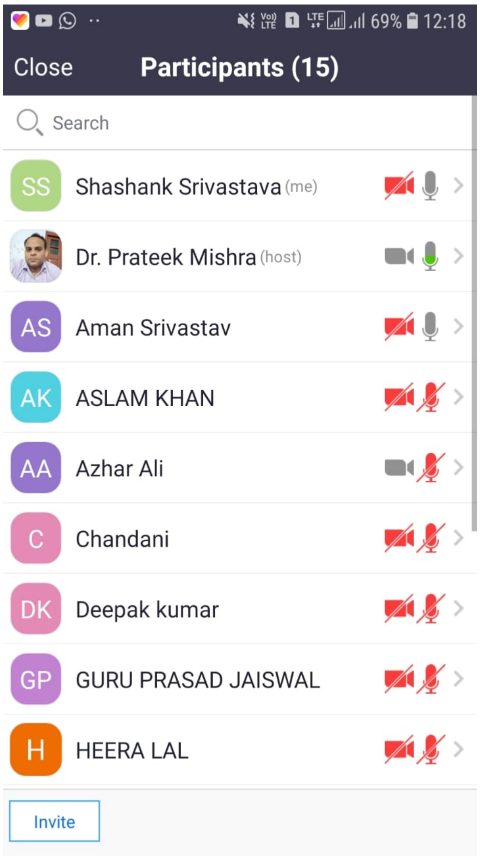
1. Department- Botany
2. Class- MSc 2 and 4th semester
3. Name of the Teacher- Dr R K Pandey
4. Date.19.04.2020. Time- 11:45- 01:30 P.M.
5. Topic- structure of chromosome, karyotype, ideogram, heterochromatin and euchromatin, repetitive DNA, Satellite DNA, banding technique of DNA. Attachments area
6. No of Participating Student-18



M.L.K.P.G. College, Balrampur
Online classes
Faculty of Science

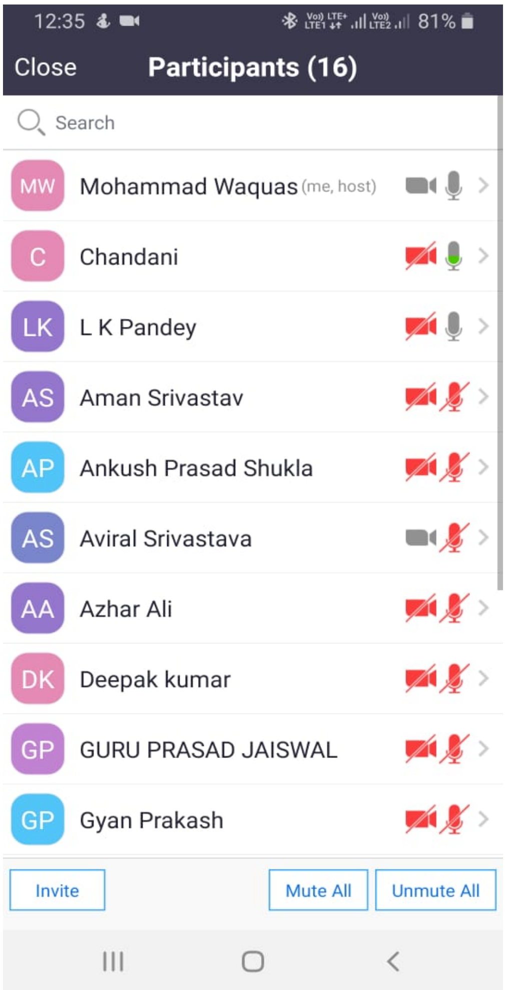
1. Department- Mathematics
2. Class- M.Sc.II semester(Mathematics), paper III
3. Name of the Teacher- Dr.Prateek Mishra
4. Date.19.04.2020. Time- 11:45- 12:25 P.M.
5. Topic- , Partial Differential Equations, has been conducted
6. No of Participating Student-15





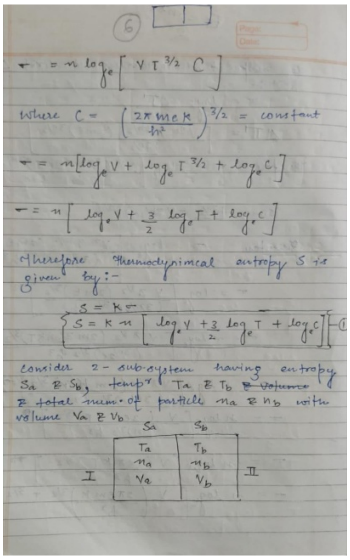
M.L.K.P.G. College, Balrampur
Online classes
Faculty of Science

1. Department- Mathematics
2. Class- M.Sc. IInd Semester 1st Paper
3. Name of the Teacher- Mohd. Waquas Khadim
4. Date.19.04.2020. Time- 12:20- 01:00 P.M.
5. Topic- , Homomorphism in Module Theory
6. No of Participating Student-15



M.L.K.P.G. College, Balrampur
Online classes
Faculty of Science

The faculties of physics Deptt Dr Alok Shukla, Dr. Amrendra Singh, DDTiwari,Nivedita, Priya & Usman Gani provided study materials online for MSc 2nd and 4th semester students today itself.


(6)

$\sigma = n \log_e [V T^{3/2} C]$

where $C = \left(\frac{2\pi mk}{h^2}\right)^{3/2}$ = constant

$\sigma = n[\log_e V + \log_e T^{3/2} + \log_e C]$

$\sigma = n[\log_e V + \frac{3}{2}\log_e T + \log_e C]$

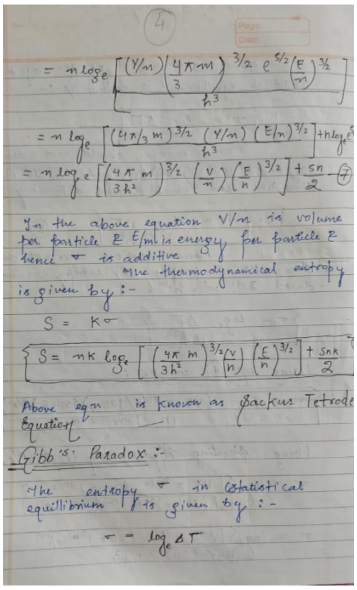
therefore thermodynamical entropy S is given by :-

$S = k\sigma$

$S = kn[\log_e V + \frac{3}{2}\log_e T + \log_e C]$ — (1)

consider 2 - sub-system having entropy S_a & S_b, temp^n T_a & T_b & total num. of particle n_a & n_b with volume V_a & V_b

	S_a	S_b	
I	T_a, n_a, V_a	T_b, n_b, V_b	II


(4)

$= n\log_e \left[\frac{(V/n)\left(\frac{4\pi m}{3}\right)^{3/2} e^{5/2} \left(\frac{E}{n}\right)^{3/2}}{h^3}\right]$

$= n\log_e \left[\frac{(4\pi/3\, m)^{3/2} (V/n)(E/n)^{3/2}}{h^3}\right] + n\log_e e^{5/2}$

$= n\log_e \left[\left(\frac{4\pi m}{3h^2}\right)^{3/2}\left(\frac{V}{n}\right)\left(\frac{E}{n}\right)^{3/2}\right] + \frac{5n}{2}$ — (7)

In the above equation V/n is volume per particle & E/n is energy per particle & hence σ is additive. The thermodynamical entropy is given by :-

$S = k\sigma$

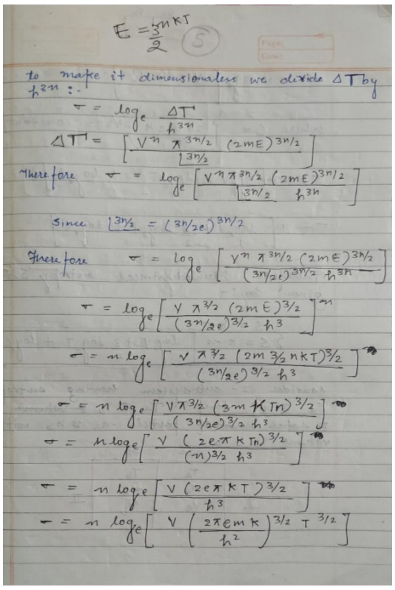
$S = nk\log_e\left[\left(\frac{4\pi m}{3h^2}\right)^{3/2}\left(\frac{V}{n}\right)\left(\frac{E}{n}\right)^{3/2}\right] + \frac{5nk}{2}$

Above eq^n is known as Sackur Tetrode Equation

Gibb's Paradox :-

The entropy σ in statistical equilibrium is given by :-

$\sigma = \log_e \Delta\Gamma$


$E = \frac{3nkT}{2}$ (5)

to make it dimensionless we divide $\Delta\Gamma$ by h^{3n} :-

$\sigma = \log_e \frac{\Delta\Gamma}{h^{3n}}$

$\Delta\Gamma = \frac{V^n \pi^{3n/2} (2mE)^{3n/2}}{\lfloor 3n/2}$

Therefore $\sigma = \log_e\left[\frac{V^n \pi^{3n/2}(2mE)^{3n/2}}{\lfloor 3n/2 \; h^{3n}}\right]$

Since $\lfloor 3n/2 = (3n/2e)^{3n/2}$

therefore $\sigma = \log_e\left[\frac{V^n \pi^{3n/2}(2mE)^{3n/2}}{(3n/2e)^{3n/2} h^{3n}}\right]$

$\sigma = n\log_e\left[\frac{V \pi^{3/2}(2mE)^{3/2}}{(3n/2e)^{3/2} h^3}\right]$

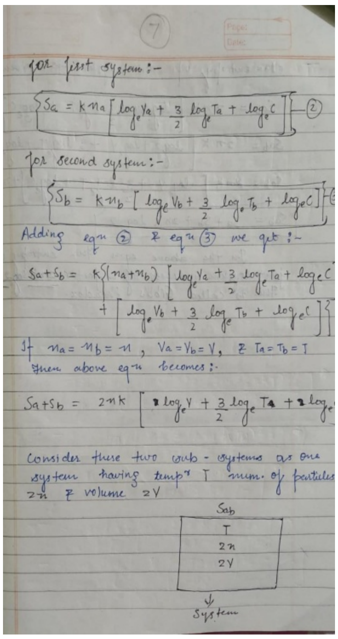
$\sigma = n\log_e\left[\frac{V\pi^{3/2}(2m\frac{3}{2}nkT)^{3/2}}{(3n/2e)^{3/2} h^3}\right]$

$\sigma = n\log_e\left[\frac{V\pi^{3/2}(3mkTn)^{3/2}}{(3n/2e)^{3/2}h^3}\right]$

$\sigma = n\log_e\left[\frac{V (2e\pi kTm)^{3/2}}{(n)^{3/2} h^3}\right]$

$\sigma = n\log_e\left[\frac{V(2e\pi kT)^{3/2}}{h^3}\right]$

$\sigma = n\log_e\left[V\left(\frac{2\pi emk}{h^2}\right)^{3/2} T^{3/2}\right]$


(7)

for first system :-

$S_a = kn_a[\log_e V_a + \frac{3}{2}\log_e T_a + \log_e C]$ — (2)

for second system :-

$S_b = kn_b[\log_e V_b + \frac{3}{2}\log_e T_b + \log_e C]$ — (3)

Adding eq^n (2) & eq^n (3) we get :-

$S_a + S_b = k(n_a+n_b)[\log_e V_a + \frac{3}{2}\log_e T_a + \log_e C] + [\log_e V_b + \frac{3}{2}\log_e T_b + \log_e C]$

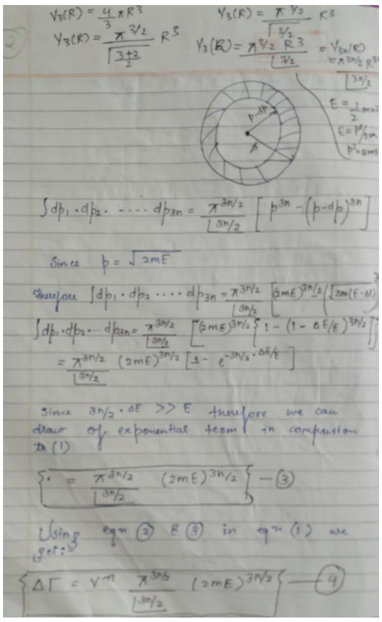
If $n_a = n_b = n$, $V_a = V_b = V$, & $T_a = T_b = T$ then above eq^n becomes :-

$S_a + S_b = 2nk[\log_e V + \frac{3}{2}\log_e T + \log_e C]$

Consider these two sub-systems as one system having temp^n T num. of particles 2n & volume 2V

S_{ab}
T
2n
2V

System


$V_3(R) = \frac{4}{3}\pi R^3$

$V_3(R) = \frac{\pi^{3/2}}{\lfloor\frac{3+2}{2}} R^3$

$\int dp_1 \cdot dp_2 \cdots dp_{3n} = \frac{\pi^{3n/2}}{\lfloor 3n/2}\left[p^{3n} - (p-\delta p)^{3n}\right]$

Since $p = \sqrt{2mE}$

therefore $\int dp_1 \cdot dp_2 \cdots dp_{3n} = \frac{\pi^{3n/2}}{\lfloor 3n/2}\left[(2mE)^{3n/2} - (2m(E-\delta E))^{3n/2}\right]$

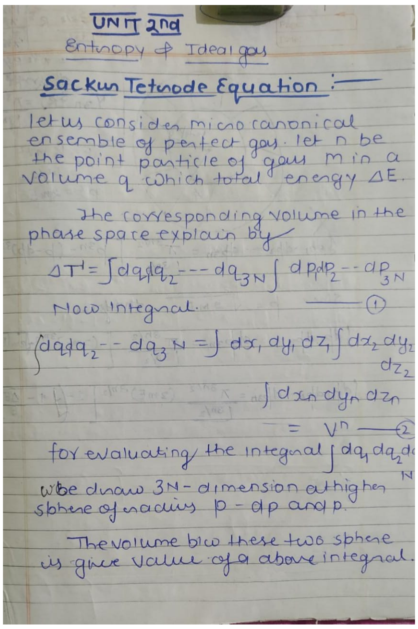
$= \frac{\pi^{3n/2}}{\lfloor 3n/2}(2mE)^{3n/2}\left[1 - e^{-3n/2 \cdot \delta E/E}\right]$

Since $3n/2 \cdot \delta E >> E$ therefore we can drop of exponential term in comparison to (1)

$\int \cdots = \frac{\pi^{3n/2}}{\lfloor 3n/2}(2mE)^{3n/2}$ — (3)

Using eq^n (2) & (3) in eq^n (1) we get :-

$\Delta\Gamma = V^n \frac{\pi^{3n/2}}{\lfloor 3n/2}(2mE)^{3n/2}$ — (4)


UNIT 2nd

Entropy of Ideal gas

Sackur Tetrode Equation :—

let us consider micro canonical ensemble of perfect gas. let n be the point particle of gas in a volume q which total energy ΔE.

The corresponding volume in the phase space explain by

$\Delta\Gamma = \int dq_1 dq_2 \cdots dq_{3N} \int dp_1 dp_2 \cdots dp_{3N}$ — (1)

Now integral

$\int dq_1 dq_2 \cdots dq_{3N} = \int dx_1 dy_1 dz_1 \int dx_2 dy_2 dz_2 \cdots \int dx_n dy_n dz_n$

$= V^n$ — (2)

for evaluating the integral $\int dq_1 dq_2 \cdots$ we draw 3N - dimension a thigher sphere of radius p - dp and p.

The volume b/w these two sphere is give value of a above integral.

M.L.K.P.G. College, Balrampur
Online classes
Faculty ofB.Ed.

1. Department- B.Ed.
2. Class- B.Ed. 1st year
3. Name of the Teacher- Dr. Shri Prakash Mishra
4. Date.19.04.2020. Time- 11:45- 12:45 P.M.
5. **TOPIC-** Measurement of Personality

   Area covered under this topic-

   1. Observation Method of Personality Measurement
   2. Interview Method of Personality Measurement
   3. Questionnaire Method of Personality Measurement
   4. Case History Method of Personality Measurement
   5. Projective Method of Personality Measurement

6- No of Participating Student-24