



REPORT OF NATIONAL SEMINAR ON NOBEL PRIZES-2022
ORGANISED BY DEPARTMENT OF PHYSICS, COE, GC SANJAULI

NOVEMBER 18th, 19th & 20th 2022

Department of Physics, under Undergraduate Physics Student Society organized, three days National seminar on Nobel prizes 2022 in collaboration of other Departments of the college. On the first day of this National Seminar on 18-11-2022, Dr Kamayani opened the session by throwing light on history of Nobel prizes and mentioned important point for the knowledge of all participants from, HP, Punjab, Haryana, J&K, Chandigarh. She introduced the two main speakers for the day, Prof. Girija Sharma and Mr. Amit Sen Gupta. Prof. Girija Sharma elaborated on the topic Nobel prizes for Literature 2022. This year Nobel Prize for literature was awarded to French Novelist Ms. Annie Ernaux, 82 from France for the courage and clinical acuity with which she uncovers the roots, estrangements and collective restraints of personal memories. Mr. Amit Sen Gupta who spoke on the topic Nobel Prize for Peace-2022. This year peace prize was shared by Ales Bialiatski, a jailed Belarusian activist, Memorial (A Russian organization) and the center for civil liberties in Ukraine. The Prize was given for promoting the Right to criticize power and protect the Fundamental Rights of citizens and for showing outstanding efforts to document war crimes, human rights abuse of power. Prof. Namita C. Khagta proposed the vote of thanks and elaborated on the main point shared by the speakers during their presentation. A very useful question and answer session was organized for the all participants present in this session and about 10 participants got the opportunity to ask questions. Dr. Sandya Sharma, Dr Vinay M. Sharma, Dr. Aditya Dulta and Dr. PoojaDulta were moderators for this session.

NOBEL PRIZES - 2022



CENTRE OF EXCELLENCE
GOVT. COLLEGE SANJAULI, SHIMLA-6
ORGANISES

NATIONAL SEMINAR

ON
NOBEL PRIZES - 2022
IN MEMORY OF SWEDISH SCIENTIST
ALFRED BERNARD NOBEL

w.e.f. 18th to 20th NOVEMBER 2022.

PATRON IN CHIEF: DR. C.B. MEHTA,
PRINCIPAL, COE, GC SANJAULI,
SHIMLA, HIMACHAL PRADESH

PATRON: DR. B.S. THAKUR

CONVENOR: DR. B.S. CHAUHAN

ADVISORS: MS. BHARTI BHAGRA

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DR. R.L. SHARMA
MS. MANEESHA KOHLI
DR. RAVINDER CHAUHAN
DR. KAMNA MAHENDRU
MR. MANOJ MEHTA
MS. BHARTI SHARMA

ORGANISING SECRETARY:
DR. KIRTI SINGHA

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CERTIFICATES AND BANNERS**

1. DR. NARESH VERMA
2. DR. RAMESHWAR JHOBTA
3. MR. MANOJ MEHTA
4. DR. KIRTI SINGHA
5. DR. AJAY KAITH
6. DR. RAJENDER SINGH
7. DR. POONAMA VERMA
8. MR. SURENDER CHAUHAN
9. MR. MUNEET LAKHANPAL

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3. DR. SANDESH KUMAR KALTA
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8. DR. OM PRAKASH

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1. DR. KAMAYANI BISHT
2. DR. VINAY MOHAN SHARMA
3. DR. POOJA DULTA
4. MR. ADITYA SINGH DULTA
5. MS. SHIVANI KAPARATE
6. MS. NAMITA C. KHAGTA

SESSION COORDINATORS

1. DR. KIRTI SINGHA Mob. 7018358537
2. MR. ANUJ SHARMA Mob. 9816037344
3. MR SURENDER CHAUHAN Mob.9418806000
4. DR. VIKAS NATHAN Mob. 945973809

ESSAY EVALUATION

1. DR. B. S. CHAUHAN
2. DR. SANDHAYA SHARMA
3. MS. HIMANI SAXENA
4. DR. MINAKSHI SHARMA
5. DR. MADAN SHANDIL
6. MS. SHALU CHAUHAN
7. MS. ANUPAMA CHAUDHERY.
8. MS BAVITA THAKUR
9. DR. AJAY KAITH
10. DR. VIKAS NATHAN

CERTIFICATE WRITING

1. MS. HEMLATA SHARMA
2. DR. GIRISH SHARMA
3. MS. SACHI SOOD
4. MS. SHWETA SHARMA
5. MS. PURNIMA THAPAR
6. MS. KAMLESH KUMARI SHARMA

ABOUT US

AN INTRODUCTION

"Aaroh Tamso Jyoti-May "rise from darkness to light, i.e. from ignorance to knowledge-the motto of Centre of Excellence, Government College, Sanjauli, Shimla-6 Compels one to halt at its portals and ruminate on The value-oriented education being imparted by this premier institution of Shimla. The College enjoys the distinct position of not only being the first Degree College to have been set up in Shimla in July 1, 1969, but also the first college to have been conferred with the status of Centre of Excellence in HYPERLINK "https://gcsanjauli.edu.in/files/coenotification.jpg" 12th January,2006. It's ideal locale with lush green cedars and oaks add to the ambience required for chiseling the personality of youngsters who are yet to carve a niche for themselves in the competitive world. Situated at a distance of about 2kms from The Ridge, it is easily accessible from Sanjauli, Lakkar Bazaar and Circular Road.

The institute takes pride in its rich history and heritage. The imposing Structure of the main building, currently housing Administrative Block and Computer Laboratories reminds one of the days of Yore, when the jungle of concrete buildings had not defaced the Queen of Hills. The College was constructed way back in April 1869 by **Harriet Christina Tytler** as an institution for industrial orphanage under name of Himalayan Christina Orphanage and named as North Stoneham. Later in 1872, the same institution was reconstituted as the Mayo Industrial School for female orphans and order girls of European extraction. However, later it was rebuilt at a grand cost of Rs. 73545/- and was opened for use on March 1, 1905 during the Lieutenant-Governorship of **Sir Charles Rivaz**, K.C.S.I., and the Episcopate of the Reverend George Alfred Lefroy, D.D., the third Bishop of Lahore. The Structure was designed

by the Architect A. Gaddock Esq. and built by the builder, Messrs. Rivert and Sons. After independence, this institution was converted into a B.Ed/B.T. College for girls affiliated to Punjab University, till it attained its present position in 1969.

OBJECTIVES OF THE SEMINAR

Alfred Nobel had a vision of a better world. He believed that people are capable of helping to improve society through **knowledge, science and humanism**. This is why he created this prize that would reward the discoveries that have conferred the greatest benefit to human kind. As Nobel Prizes are given in the field of **Physics, Chemistry, Physiology, Peace, Literature and Economics**, this seminar is a multi-disciplinary event. For the year 2022, Rs. 7.4 Cr. is the prize money accompanying the award in each category. The Nobel Prize is the most prestigious award in the world. Keeping in mind the importance of these prizes and particularly the work done in each category by their winners, it was proposed by the department of Physics that a National Seminar on the "Nobel Prizes 2022" be organized with assistance from the IQAC of Govt. College Sanjauli. All stake holders, teachers and students will have an opportunity to share their views on various topics for which the Nobel Prizes were awarded between 3rd October and 10th October 2022. About 1000 participants from HP, Chandigarh, Punjab, Haryana, Rajasthan, J&K and other states are expected to participate in this National Seminar. **An essay competition is also being organized for students of schools, colleges and universities.** The best entries will be given certificates of appreciation on the 14th November 2022 (Children's Day).

Schedule of events:

1) **Essay writing Competition** (Research Scholars and Students of Schools, Colleges and Universities)

Topic: Nobel Prizes 2022 (Any one of six Noble Prizes)

Word Limit: 1000 words

Language: English, Hindi or Sanskrit

The entry must mention the name of the participant, their class, name of institution and contact number. The essay is to be written on work done by Nobel Laureates for being awarded this year Nobel Prize. The original essays should be submitted preferably in Times New Roman, typeface 12 and 1.5 line-space or neatly hand written.

Last date of submission: 9th November 2022

Essays are to be submitted on:

skilljobhp@gmail.com

The best essays will be awarded on 14th November 2022 (Children's Day)

2) **Registration Link for online sessions for teachers, research scholars and students:**

<https://forms.gle/u21m4NMtyS3nkTZU6>

Dates: 18th, 19th and 20th November 2022

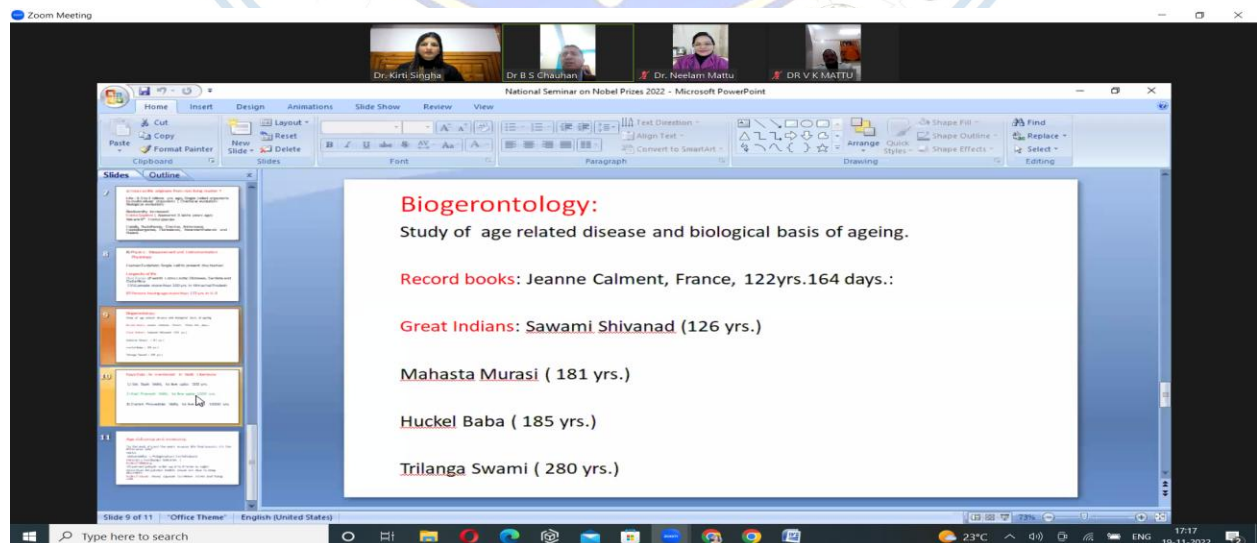
Timings: 5pm to 7pm

Link for online session will be shared with registered participants prior to the sessions.



On 19th Nov 2022, Dr B.S. Chauhan in his opening remarks talked about importance of Nobel Prizes. He said that the basic philosophy to award Nobel Prize is that you can succeed best and

quickest by helping others to succeed. He specially mentioned that the sum of amount Rs 7,28,70,710 was given as prize in 2022 to each of six categories namely Physics, Chemistry, Literature, Physiology or Medicine, Peace and Economics. He also highlighted the importance of such events in shaping the future of school and college students. He suggested that all students must be part of such events and participants get opportunity to ask questions on the given topics from famous scholars of India. About 5000 students and more than 100 teachers from different state of North India participated in this National Seminar. Dr. B.S. Chauhan, convener of this event also discussed about upcoming events being organized by COE, GC Sanjauli in coming days. First invited speaker on 19th November 2022 was Prof. V.K. Mattu, who is famous scientist, mentor and ex. chairman of Haryana KishanAyog. He presented his views on Nobel Prize for Physiology or Medicine - 2022. This year Nobel Prize for Physiology or Medicine was awarded on October 3rd 2022 to SvantePaabo of extinct hominins and human evolution. Paabo's seminal research gave rise to an entirely new scientific discipline named as Paleogenomics. Dr. Mattu told all the participants that by revealing genetic differences that distinguish all living human from extinct hominins the discovery of SvantePaabo, provide the basis for exploring what makes us uniquely human. He is credited with developing methodologies to extract 'clean' DNA from human fossils thousands of years old and trading the genetic information they contain. He helped to explain what makes humans unique and provided key insights into our immune system, including our vulnerability to serve covid-19. Dr. Mattu made the topic very simple and understandable even to non-Science participant. The next speaker was famous scientist and physicist Prof P.K. Alhuwalia who highlighted the main points of the process to decide about Nobel Prize and he nicely covered the topic which was well organized and presented it in understandable form to all participants. This year prize for Physics was shared by three men, Alain Aspect, John F. Clauser and Anton Zeilinger, for their work in quantum technology. Dr. KritiSingha presented the vote of thanks and also elaborated about the main points of this session which were shared by different speakers. About 20 students from school and college got opportunity to ask questions and session was extended by 1 hour, keeping in mind the great response from the students and teachers.



The screenshot shows a Zoom meeting interface with a PowerPoint presentation. The presentation slide is titled "Biogerontology: Study of age related disease and biological basis of ageing." and lists record books and great Indians. The record books listed are Jeanne Calment, France, 122yrs.164 days. The great Indians listed are Sawami Shivanad (126 yrs.), Mahasta Murasi (181 yrs.), Huckel Baba (185 yrs.), and Trilanga Swami (280 yrs.).

Zoom Meeting

Dr. Kirti Singhla, Dr. B.S. Chauhan, Dr. Neelam Mattu, DR V K MATTU

National Seminar on Nobel Prizes 2022 - Microsoft PowerPoint

Home, Insert, Design, Animations, Slide Show, Review, View

Clipboard, Paste, Cut, Copy, Format Painter, New Slide, Delete, Slides, Font, Paragraph, Text Direction, Align Text, Convert to SmartArt, Drawing, Shape Fill, Shape Outline, Shape Effects, Find, Replace, Select

Slide 9 of 11 | Office Theme | English (United States)

Type here to search

23°C, 17:17, 19-11-2022

Zoom Meeting

DR V K MATTU

Mute My Audio (Alt+A)

Mute Stop Video

Security Participants Chat Share Screen Raise Hand Record Apps

23°C 19-11-2022

Zoom Meeting

Dr. Neelam Mattu

Dr. B. S. Chauhan Dr. Neelam Mattu Dr. Kirti Singha PK Ahluwalia

Participants (58)

Find a participant

- DK Dr. Kirti Singha (Me)
- PA PK Ahluwalia (Host)
- Dr. Neelam Mattu
- DB Dr. B. S. Chauhan
- पूरी सरा
- N Nikhil
- AT Anamika Thakur
- A Anjali
- AV Ansh Vashist
- AS Anuj Sharma
- AV Anurag Verma
- AV ARYAN VED
- DR Dikshant Ratwan
- DR Dr. Ravinder Chauhan
- DW DR V K MATTU
- DA Dr. Anant Vidya Nidhi

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23°C 19-11-2022

Zoom Meeting

Recording...

Dr. Rajesh K. Jaryal

Dr. Rajesh K. Jaryal Dr. Kirti Singha DR V K MATTU Dr. Neelam Mattu

Participants (99)

Find a participant

- DK Dr. Kirti Singha (Co-host, me)
- AS Anuj Sharma (Host)
- KC Lower Hand Ask to Unmute
- PA PK Ahluwalia
- DR Dr. Rajesh K. Jaryal
- DW DR V K MATTU
- A Aditi
- AM Anchal Mehta
- A Anjali
- AS Anjana Sharma
- A Ankit
- A Ankita
- AK Ankita Kanwar
- AV Ansh Vashist
- AV Anurag Verma

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23°C 19-11-2022

Zoom Meeting

Recording...

Dr. Kirti Singha, DR. V. K. MATTU, PK Ahluwalia, Shivani keprate

Participants (97)

MS Manohi sharma, MT Minakshi thakur, M Mohit, Monika chandel, N Nikhil, NC Nikhil Chauhan, N Nishant, NN Nitesh Niranjn, OA OPPO A12, PS Poonam Sharma, PB Prikshit Bhardwaj, R Rahul, RS Rameshwar Singh, R Ritika Thakur, SK Sahil kainth

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You are viewing PK Ahluwalia's screen

23°C

18:06 19-11-2022

Zoom Meeting

Recording...

PK Ahluwalia

ORIGIN OF QUANTUM MECHANICS (1900-1920)

- Continuous vs Discrete
- What makes Matter?
- What is Quantization of Charge?
- What is Quanta of Quantum Mechanics
- Spectrum of atoms
- Trimurti: Planck, Einstein, Bohr

UV, VISIBLE, INFRARED

Spectral radiance ($W \cdot m^{-2} \cdot m^{-1} \cdot m^{-1}$)

Wavelength (μm)

Classical theory (5000K)

3000 K, 4000 K, 5000 K

$E_{photon} = h(\nu - \nu_0)$

Unmute, Start Video, Security, Participants, Chat, Share Screen, Raise Hand, Pause/Stop Recording, Apps, Leave

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23°C

18:16 19-11-2022

Zoom Meeting

Recording...

Dr. Kirti Singha, PK Ahluwalia

EPR PARADOX

Albert Einstein, Boris Podolsky, Nathan Rosen

MAY 15, 1935 PHYSICAL REVIEW VOLUME 47

Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?

A. EINSTEIN, B. PODOLSKY AND N. ROSEN, *Institute for Advanced Study, Princeton, New Jersey* (Received March 25, 1935)

OCTOBER 15, 1935 PHYSICAL REVIEW VOLUME 48

Can Quantum-Mechanical Description of Physical Reality be Considered Complete?

N. BOHR, *Institute for Theoretical Physics, University, Copenhagen* (Received July 13, 1935)

PHYSICAL REVIEW VOLUME 108, NUMBER 4 NOVEMBER 15, 1957

Discussion of Experimental Proof for the Paradox of Einstein, Rosen, and Podolsky

D. BOHM AND Y. ARAKAWA *Tel-Aviv, Israel* (Received May 10, 1957)

EINSTEIN ATTACKS QUANTUM THEORY

Scientists and Two Colleagues Find It Not 'Complete' Even Though 'Correct.'

SEE FULLER ONE POSSIBLE

Believe a Whole Description of 'the Physical Reality' Can Be Provided Eventually.

Hidden Variable Theory

EPR describe the principle of locality as asserting that physical processes occurring at one place should have no immediate effect on the elements of reality at another location.

Meeting Chat

All the very best Dr Rajesh..Very nice query.

PK Ahluwalia to Everyone

Thank you for unmuting.

Dr. Neelam Mattu to Everyone

Prof Brijesh Chauhan you deserve a huge round of loud applause for the excellent topic chosen .

Anuj Sharma to Everyone

please record the lecture

Me to Everyone

yes, im recording.

Anuj Sharma to Everyone

ok mam

Dr. Neelam Mattu to Everyone

Heartiest Congratulations Ahluwalia Sir for such an interesting talk...Regards

Who can see your messages? Recording On

To: Everyone

Type message here...

Type here to search

23°C

18:56 19-11-2022

Zoom Meeting

Recording...

Dr. Kirti Singha

PK Ahluwalia

Participants (94)

Find a participant

- M Mohit
- Monika chandel
- N Nikhil
- NC Nikhil Chauhan
- N Nishant
- NN Nitesh Niranjn
- OD OnePlus DN2101
- OA OPPO A12
- PS Poonam Sharma
- PB Prikshit Bhardwaj
- R Rahul
- RS Rameshwar Singh
- R Ritika Thakur
- SK Sahil kainth
- ST Sahil Thakur

Mute Stop Video Security Participants Chat Share Screen Raise Hand Pause/Stop Recording Apps Leave

Type here to search

23°C

ENG

18:11

19-11-2022

DECADE OF 1920: FIRST QUANTUM REVOLUTION

God Never Plays Dice
-Albert Einstein



A. Piccard, E. Henniott, P. Ehrenfest, E. Herzen, Th. de Donder, E. Schrödinger, J. E. Verschaffelt, W. Pauli, W. Heisenberg, R. H. Fowler, L. Brillouin, P. Debye, M. Knudsen, W.L. Bragg, H. A. Kramers, P. A. M. Dirac, A. H. Compton, L. de Broglie, M. Born, N. Bohr, I. Langmuir, M. Planck, M. Curie, H.A. Lorentz, A. Einstein, P. Langevin, Ch.-E. Guye, C. T. R. Wilson, O. W. Richardson
Fifth conference participants, 1927. Institut International de Physique Solvay in Leopold Park.

Solvay Conference
(1927)

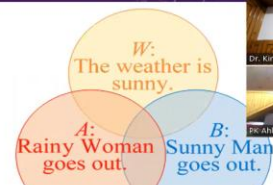


Bohr Einstein Debates

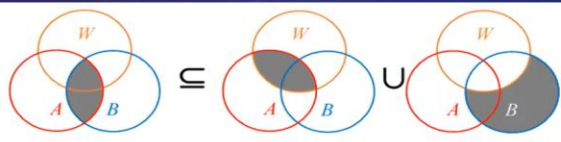
BELLS THEOREM (1964)

Are Hidden Variables are possible or not?

Started proof with the assumption that Einstein's Hidden Variab Theory is correct and what is the mathematical result which shows that it is so



Bell's inequality: $P(A \cap B) \leq P(A \cap W) + P(\bar{W} \cap B)$



Bell's inequality: $P(A \cap B) \leq P(A \cap W) + P(\bar{W} \cap B)$

JOHN CLAUSER

John F. Clauser
The Nobel Prize in Physics 2022

Born: 1 December 1942, Pasadena, CA, USA
Affiliation at the time of the award: J.F. Clauser
& Assoc., Walnut Creek, CA, USA

Prize motivation: "for experiments with entangled photons, establishing the violation of Bell inequalities and pioneering quantum information science"



ALAIN ASPECT

Father of quantum entanglement

Experimental tests of realistic local theories via Bell's theorem

A Aspect, P Grangier, G Roger - Physical review letters, 1981 - APS

We have measured the linear polarization correlation of the photons emitted in a radiative atomic cascade of calcium. A high-efficiency source provided an improved statistical accuracy and an ability to perform new tests. Our results, in excellent agreement with the quantum mechanical predictions, strongly violate the generalized Bell's inequalities, and rule out the whole class of realistic local theories. No significant change in results was observed with source-polarizer separations of up to 6.5 m.

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Alain Aspect developed this experiment, using a new way of exciting the atoms so they emitted entangled photons at a higher rate. He could also switch between different settings, so the system would not contain any advance information that could affect the results.



PETER SHOR, LOV GROVER

Quantum Teleportation, Quantum Cryptography, Quantum Computers

Problem of Multiplication and Factorization

Polynomial time quantum algorithm for the Factorization

-Peter Shor

Quantum database Search: Hard Problem

Number of required steps reduced

From $O(N)$ to $O(\sqrt{N})$

-Lov Grover

Dr. R.L. Sharma started the session On 20 /11/2022 by giving opening remarks. About 500 students of economics, commerce, BBA and science joined this session. Dr. R.L. Sharma

mentioned the name of famous economists of world who got Nobel prize for economics in the past years. He also elaborated about their important work in the field of economics. First speaker Dr. Sandeep Chauhan was famous scientist and professor of chemistry from HPU Shimla. He nicely presented the topic “Nobel prize for chemistry 2022”. He started his presentation by inventions, names and work of famous person who got Nobel prize for chemistry in past years. This year Nobel Prize was awarded to Carolyn R. Bertozzi Morten Meldal and K. Barry Sharpless for the development of click chemistry and bio-orthogonal chemistry. His session was very knowledgeable and shared interesting fact about chemistry which has played important role in Pharma industry. The speaker for the concluding session on 20/11/2022 was Dr. T.R. Sharma who is famous teacher of economics. His session was very interactive and about 20 students and teachers got opportunity to ask question from key note speakers. This year Nobel Prize in Economics was awarded to Ben S. Bernanke on 10th October 2022. He is the former Federal Reserve chair and two other academics for their research into banks and financial crises. Prof Shallu Chauhan, presented the vote of thanks and elaborated about the important points during this session. Dr Ajay Kaith, DrRajinder Singh, Prof. Surinder Chauhan and Prof. VikasNattan were moderators for this session. All the participants of various institutions were grateful towards the organizing committee for organizing, this very important and useful event. Dr. C. B. Mehta, Principal of the college, appreciated the efforts of Dr B. S. Chauhan (Convener), Dr. R.L. Sharma (Member Organizing Team) and Dr. KirtiSingha (Organizing Secretary) for successfully organizing this National Seminar with the help of members of organizing team.

Dr KirtiSingha Dr R.L Sharma Dr. B.S. Chauhan Dr. C.B. Mehta
Org. Secretary Member Org. Committee Convener Principal
Shimla-6. COE GC Sanjauli,

Report Compiled by : NitishNiranjan, Saloni Sharma and Surya Mani

Edited by: Dr. Brijesh Chauhan

Submitted by: Dr. Kirti Singha