SARDAR PATEL UNIVERSITY, MANDI
HIMACHAL PRADESH - 175001

SPUCET-2025
(Sardar Patel University Common Entrance Test-2025)

for Admission in PG and UG Courses for the Academic Session: 2025-26

Email: spucet2025@spumandi.ac.in
Website: www.spumandi.ac.in
Phone No: 01905-235495, 292295

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ABOUT THE UNIVERSITY

Sardar Patel University, Mandi nestled in the lap of the Himalayan ranges in the heartland of Himachal Pradesh is situated on the banks of the Mighty Beas River in temple town of Mandi. It came into existence on April 1, 2022, as a state university vide H.P. State Govt. Notification No. EDN-A-Ka (1)-17/2021, dated February 28, 2022. The University has been conferred the 2(f) status of UGC. It has jurisdiction over 3 districts of Himachal Pradesh namely Mandi, Kullu, Lahul & Spiti. There are 45 colleges and institutes affiliated with this University offering undergraduate and postgraduate programs.

Sardar Patel University is presently running seven Ph.D. programs, ten PG courses and one integrated course in the university campus.

VISION AND MISSION OF THE UNIVERSITY

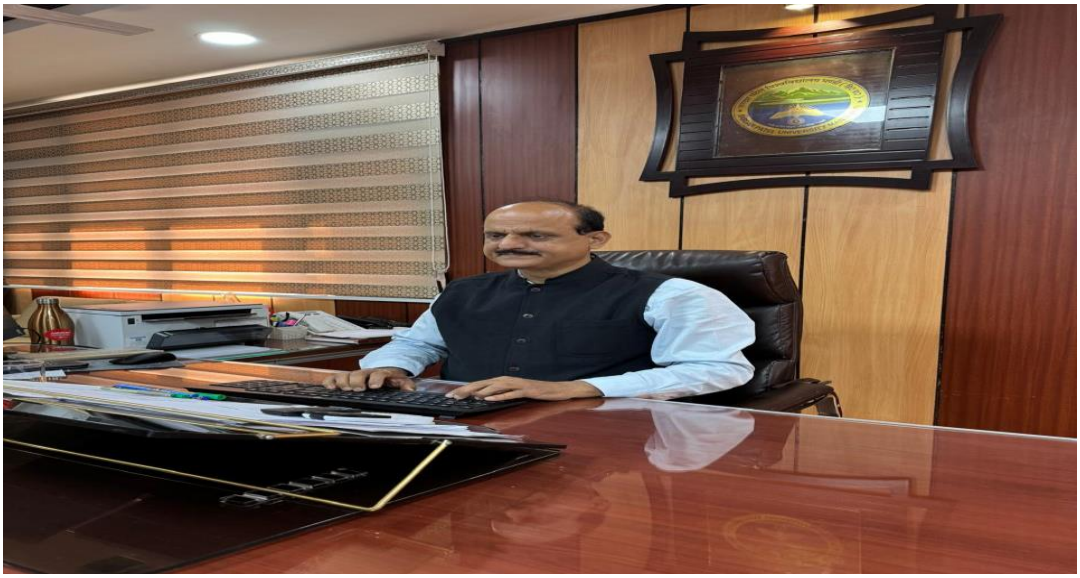
Our Vision

To create, disseminate and proliferate knowledge to all sections of society by developing a center of academic excellence and to be a key factor for the economic and social transformation of the people of this region in particular and state &nation in general.

Our Mission

To develop human resource by providing multidimensional holistic education infused with Indian cultural ethos and values for the enlargement of intellectual and human dimensions leading to an egalitarian society and improved social, cultural and economic quality of life of people through community engagement.

MESSAGE FROM THE VICE-CHANCELLOR



Dear Aspiring Students,

Greetings from **Sardar Patel University, Mandi!**

It gives me immense pleasure to welcome you to Sardar Patel University, Mandi, a premier institution dedicated to academic excellence, research and holistic development. As you embark on your journey towards higher education, I invite you to be a part of our vibrant academic community through the Sardar Patel University Common Entrance Test (SPUCET) 2025.

SPUCET serves as a gateway for admission to various postgraduate and undergraduate programs offered by the university and its affiliated colleges. Our university is committed to providing quality education, fostering innovation and nurturing young minds for a promising future. With a dedicated faculty, state-of-the-art infrastructure and a dynamic learning environment, we ensure that every student receives the best academic and professional training. I encourage you to prepare diligently and take full advantage of this opportunity to join Sardar Patel University, where knowledge meets excellence. Wishing you all success in SPUCET 2025 and looking forward to welcoming you to our academic family.

Prof. Lalit Kumar Awasthi,
Vice-Chancellor,
Sardar Patel University, Mandi.

MESSAGE FROM PRO-VICE CHANCELLOR CUM DEAN CDC CUM DEAN HUMANITIES

Dear Aspiring Students,

I am delighted that you are considering **Sardar Patel University** for your higher education. As you prepare to take the **Sardar Patel University Common Entrance Test (SPUCET) 2025**, I extend my best wishes for your academic journey ahead.

SPUCET is designed to provide deserving students with the opportunity to pursue quality education in a stimulating and supportive environment. At Sardar Patel University, we are committed to fostering academic excellence, research and innovation. With a distinguished faculty, modern infrastructure and a student-centric approach, we aim to shape future leaders and professionals.

I encourage you to give your best in this entrance examination and take the first step towards a rewarding educational experience. We look forward to welcoming you to the **SPU family** and being a part of your academic and professional growth.

Wishing you success in **SPUCET 2025**!

Prof. Anupama Singh
Pro Vice-Chancellor
Sardar Patel University, Mandi

MESSAGE FROM THE REGISTRAR

Dear Students,

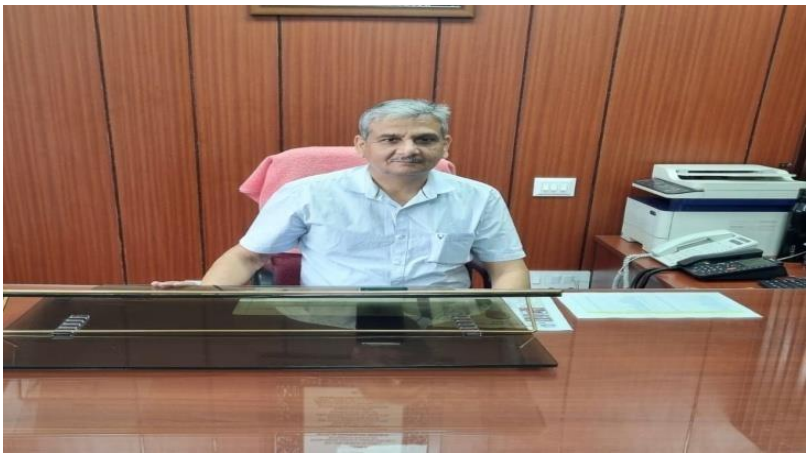
I extend a warm welcome to all students aspiring to join our esteemed university through the **Sardar Patel University Common Entrance Test (SPUCET) 2025**. Choosing the right institution for higher education is a crucial decision and we at SPU are committed to providing a nurturing academic environment that fosters learning, innovation and overall development.

SPUCET serves as the gateway to a wide range of undergraduate and postgraduate programs, ensuring a transparent and merit-based admission process. With our dedicated faculty, modern infrastructure and a student-friendly approach, we strive to empower students with knowledge and skills that prepare them for future challenges.

I encourage you to prepare diligently for **SPUCET 2025** and take advantage of this opportunity to become a part of **Sardar Patel University, Mandi**. Wishing you all the best for your entrance exam and looking forward to welcoming you to our academic community.

Dr. Madan Kumar (HPAS)
Registrar
Sardar Patel University, Mandi

MESSAGE FROM THE CONTROLLER OF EXAMINATIONS



Dear Aspirants,

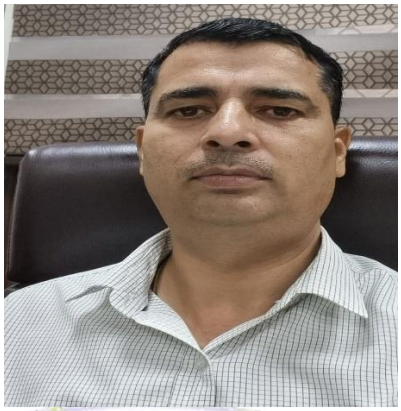
It is my pleasure to welcome you to the **Sardar Patel University Common Entrance Test (SPUCET) 2025**—your gateway to academic excellence and future opportunities. This entrance test is designed to ensure a fair, transparent and merit-based admission process for various undergraduate and postgraduate programs offered by the university.

At Sardar Patel University, we uphold the highest standards of integrity and efficiency in our examination system to provide every candidate with an equal opportunity to excel. I encourage you to prepare with dedication and confidence for SPUCET 2025. Our team is committed to ensuring a smooth and seamless examination process and we urge you to follow all guidelines carefully for a hassle-free experience.

Wishing you all success in **SPUCET 2025** and looking forward to seeing you as a part of **Sardar Patel University, Mandi**.

Dr. Suneel Verma
Controller of Examinations
Sardar Patel University, Mandi

MESSAGE FROM THE FINANCE OFFICER



Dear Aspiring Students,

As you prepare to take the **Sardar Patel University Common Entrance Test (SPUCET) 2025**, I extend my best wishes for your success and future endeavours. Pursuing higher education is a significant investment in your future and at **Sardar Patel University**, we are committed to providing a quality education that is both accessible and affordable.

Our university maintains a transparent and student-friendly financial system, ensuring that all financial transactions, including fees, scholarships and other monetary aspects, are handled with efficiency and integrity. Various financial assistance programs and scholarships are available to support deserving students in achieving their academic goals.

I encourage you to stay focused on your preparations and take full advantage of the opportunities offered at **Sardar Patel University, Mandi**. We look forward to welcoming you and supporting you in your educational journey.

Wishing you the very best for **SPUCET 2025**!

Mr. Hans Raj Saini
Finance Officer
Sardar Patel University, Mandi

ACADEMIC PROGRAMS

For the session 2025–26, the university will admit students to the following departments on its campus and in its affiliated colleges:

University Campus Departments, SPU Mandi

S. No.	Name of course	No. of seats	
		Subsidized	Non-Subsidized
1	**MSc Botany** (Through Entrance Test)	20	10
2	**MSc Chemistry** (Through Entrance Test)	20	10
3	**MCA** (Through Entrance Test)	30	15
4	**MSc Environmental Science** (Through Merit)	20	10
5	**MA History** (Through Entrance Test)	30	15
6	**MSc Industrial Chemistry** (Through Merit)	20	10
7	**MBA** (Through Entrance Test)	30	15
8	**MSc Physics** (Through Entrance Test)	20	10
9	**MA Public Administration** (Through Merit)	30	15
10	**MSc Zoology** (Through Entrance Test)	20	10
11	**BSc-MSc Integrated Physics** (Through Merit)	15	05
Number of seats may increase or decrease at the time of admission			

Affiliated Colleges of University

Details of affiliated colleges and courses wise sanctioned seats:

S.No.	Name of the Course	Name of the College where the course is offered	Sanctioned Seats
1.	**M.Sc. Physics**	Govt College Sarkaghat	30
		MLSM College Sundernagar	40
2.	**M.Sc. Chemistry**	Govt College Sarkaghat	30
		MLSM College Sundernagar	40
		Abhilashi PG Institute of Sciences, Nerchowk	40
3.	**M.Sc. Botany**	MLSM College Sundernagar	20
		Abhilashi PG Institute of Sciences, Nerchowk	40
		Govt College Sarkaghat	30
4.	**M.Sc. Zoology**	MLSM College Sundernagar	30
		Govt College Sarkaghat	30
5.	**M.Sc. Mathematics**	Vallabh Govt College Mandi	35
6.	**M.Com.**	Vallabh Govt College Mandi	35
		Govt College Haripur (Manali)	30
7.	**M.A. Hindi**	Govt College Karsog	30
		Vallabh Govt College Mandi	35
		Govt College Kullu	30
8.	**M.A. English**	Govt College Jogindernagar	20
		Govt College Karsog	30
		Vallabh Govt College Mandi	30
		Govt College Haripur (Manali)	20

		Govt College Kullu	30
		Govt College Dharampur	30
9.	**M.A. Political Science**	Govt College Karsog	30
		Vallabh Govt College Mandi	35
		Govt College Sarkaghat	20
		Govt College Haripur (Manali)	30
		Govt College Kullu	30
10.	**BCA**	Govt College Jogindernagar	60
		Vallabh Govt College Mandi	80
		Govt College Sarkaghat	70
		MLSM College Sundernagar	60
		Vijay Institute of Higher Education, Nerchowk	60
		Govt College Kullu	60
11.	**BBA**	Govt College Jogindernagar	40
		Vallabh Govt College Mandi	70
		Govt College Sarkaghat	40
		MLSM College Sundernagar	60
		Vijay Institute of Higher Education, Nerchowk	50
		Govt College Kullu	60
12.	**B.Ed.**	Kullu College Of Education, Vill. Bohgana, PO Garsa, Distt. Kullu	100 (2 units)
		Rameshwari Teachers Training Institute, Bhunter, Distt. Kullu	100 (2 units)
		M.L.S.M.College, Sundernagar,Mandi	100 (2 units)
		Noble College of Education, Vill Seog. PO Pandoh, Mandi	100 (2 units)
		Bhardwaj Shikshan Sansthan, VPO Baral, Tehsil Karsog, Mandi	100 (2 units)
		Abhilashi College of Education, Ner Chowk, Mandi	200 (4 units)
		Gayatri College of Education, P O Kangoo, Tehsil Sundernagar,Mandi	100 (2 units)
		Jagriti Teachers Training College, Deodhar, POTalyahar, Mandi	100 (2 units)
		Krishma Educational Centre, Ner Chowk, Mandi	50 (1 unit)
		Lalgee B.Ed College, PO Gutkar, Mandi	100 (2 units)
		Lord Buddha College of Education, Baldawara, Mandi	100 (2 units)
		Minerva College of Education, Baggi, Mandi,	100 (2 units)
		Namdhari College of Education, Bhojpur, Mandi	50 (1 unit)
		Vijay Memorial College of Education, Ner-Chowk, Mandi	200 (4 units)
		Neelam College Of Education,Jimjimaa, Jogindernagar, Mandi	100 (2 units)

ADMISSION PROCEDURE

University Campus

Admission to the postgraduate courses (MBA, MCA, MA History, MSc Physics, MSc Chemistry, MSc Botany and MSc Zoology) both in subsidized and non-subsidized seats will be done through the SPUCET-2025.

Admissions in MSc (Industrial Chemistry), MSc Environment Science, MA Public Administration and Integrated BSc-MSc (Physics) will be done on the basis of merit.

Candidates interested in seeking admissions must have appeared in the SPUCET-2025 and are directed to apply for counseling in the above-mentioned courses by visiting the Sardar Patel University website (www.spumandi.ac.in). Candidates are also advised to follow the admission-related updates regularly on the University website.

Affiliated Colleges

The colleges affiliated with Sardar Patel University, Mandi and offering courses that are running at SPU Mandi and for which an entrance test is to be conducted shall also admit students to such courses on the basis of the merit of SPUCET-2025.

Besides the aforesaid courses, SPU Mandi shall also conduct entrance tests for admissions in courses of BBA, BCA, B.Ed., MA Hindi, MA English, MA Political Science, MSc Mathematics and M.Com.. These courses are not running in the university but are being offered in the affiliated college. The affiliated colleges shall make admissions to these courses on the basis of the merit of SPUCET-2025. In case, the colleges are not able to fill all the sanctioned seats in any of the above courses through entrance test, admissions in respect of the seats left vacant shall be done by the college on the basis of merit of the qualifying examination after obtaining due approval from the Vice Chancellor of Sardar Patel University, Mandi, (HP). As far as admissions in courses other than those mentioned above are concerned, the same shall be strictly done on the basis of the merit of qualifying examination as per the guidelines of the State Government/University.

ENTRANCE TEST ACADEMIC PROGRAM DETAILS

S. No.	Name of Program	Eligibility Criteria	
		Age	Qualification
01	MSc Botany/ Zoology/ Physics/ Chemistry/ Mathematics	The maximum age limit is 26 years for boys and 28 years for girls (29 years in case of SC/ST candidates both for Boys & Girls) as on 1st July of the concerned year.	A Bachelor's degree from a university established by law in India (with the subject of study for MSc as one of the subjects) with at least 50% marks (45% in the case of SC/ST candidates) or honors in the subject concerned.
02	MA History/Hindi/English /Political Science	The maximum age limit is 26 years for boys and 28 years for girls (29 years in case of SC/ST candidates both for Boys & Girls) as on 1st July of the	A Bachelor's degree from a university established by law in India (with the subject chosen for the Master's Degree program as a major, minor, or allied subject at the bachelor degree level) with at least 50% marks (45% in the case of

		concerned year.	SC/ST candidates) in the qualifying exam.
03	MCA	The maximum age limit is 26 years for boys and 28 years for girls (29 years in case of SC/ST candidates both for Boys & Girls) as on 1st July of the concerned year.	A Bachelor of Computer Applications (BCA)/B.Sc. (Computer Science)/B.Sc. (IT)/BA (Computer Science)/BA (IT) OR any graduate with 20–24 credits in the subjects of computer science OR any graduate with a minimum of six courses of computer science studied in graduation (in the case of a degree not in the credit system) with at least 50% marks (45% in the case of SC/ST) from a university established by law in India.
04	MBA	The maximum age limit is 26 years for boys and 28 years for girls (29 years in case of SC/ST candidates both for Boys & Girls) as on 1st July of the concerned year.	A Bachelor's degree from a university established by law in India with at least 50% marks (45% marks in the case of SC/ST candidates).
05	M. Com.	The maximum age limit is 26 years for boys and 28 years for girls (29 years in case of SC/ST candidates both for Boys & Girls) as on 1st July of the concerned year.	B.Com./B.Com. (Hons) or Bachelor's degree in Business Administration/ BA with Commerce or BA/ BSc/MA/MSc in Economics/Statistics/ Mathematics or Degree of a foreign university that may be recognized as equivalent for the purpose by the Vice Chancellor with such conditions as he may impose regarding the additional courses of study that the candidate would be required to pass to qualify for the degree or A Bachelor's degree from a university established by law in India (with the subject chosen for the Master's Degree program as a major, minor, or allied subject at the Bachelor degree level) with at least 50% marks (45% in the case of SC/ST candidates) in the qualifying exam.
06	BCA	The maximum age limit is 21 years for boys and 23 years for girls (24 years in case of SC/ST candidates both for Boys & Girls) as on 1st July of the concerned year.	Plus two examinations under the 10+2 system or examination equivalent thereto of a board or university established by law in India with 40% marks (35% marks for SC/ST candidates) or any examination of a university, board, college, or school in a foreign country recognized as equivalent for the above purpose by the Vice Chancellor or Equivalence Committee of its own or on

			recommendations of the Association of Indian Universities with 40% marks (35% marks in the case of SC/ST candidates)
07	BBA	The maximum age limit is 21 years for boys and 23 years for girls (24 years in case of SC/ST candidates both for Boys & Girls) as on 1st July of the concerned year.	Plus two examinations under the 10+2 system or examinations equivalent thereto of a board or university established by law in India with 45% marks (40% marks for SC/ST candidates) or any examination of a university, board, college, or school in a foreign country recognized as equivalent for the above purpose by the Vice Chancellor or Equivalence Committee
08	B. Ed.	There is no upper age limit for candidates applying to the regular B.Ed. Course of two years. (High Court orders in LPA No.: 104 of 2012 decided on August 27, 2012)	1) Candidates with at least 50.00% marks or 5.01 if CGPA or Grade B if in letter grade in the Bachelor's Degree (Medical/Non-Medical/Commerce/Arts) and/or in the Master's Degree in the Sciences/Social Sciences/Humanities/Commerce, Bachelor's in Engineering or Technology with specialization in Science and Mathematics with 55.00% or 5.51 if CGPA or Grade B+ if in letter grade or any other qualifications equivalent thereto. 2) At least 45.00%, or 4.51 if CGPA is in the letter grade in the case of SC/ST/OBC/physically handicapped categories in the aforesaid bachelor's or Degree and 50.00%, or 5.01 if CGPA is in Grade B for a bachelor's in engineering or technology from a recognized university established by law in India. ***Note:*** i. The candidates who have appeared in the BA/B.Sc./B.Com. final year or Bachelor of Engineering/Technology or any other qualification equivalent thereto examination and the result of the same has not yet been declared, can also apply for the B.Ed. Entrance Test. However, the admission of such candidates will depend on the production of a certificate of qualifying examination with the required percentage of aggregate marks in the aforesaid examinations as per the eligibility clause of the prospectus. If a candidate does not fulfill the eligibility

			conditions, he or she will have no right to admission to the B.Ed. course. As such, the candidate may appear provisionally at his or her own risk and responsibility. ii. Post-graduation is considered only to make those candidates eligible who are not eligible on the basis of the qualifying examination, but post-graduation will not be the merit criteria. iii. No relaxation, even 0.01% of the above-prescribed percentage of marks, shall be granted under any circumstances. iv. Pursuant to the judgment delivered in CWP No. 2465/2018 and CWP No. 2475/2018 by the Hon'ble High Court of Himachal Pradesh with regard to subject combinations in various streams such as medical, non-medical, arts and commerce, the existing rules have been modified in conformity with the R&P Rules of the State Government. However, merely awarding the degree of B.Ed. by the university shall not be construed as a declaration of the eligibility of the candidates for the appointment to the post of TGT in the government sector and to determine the eligibility for such a post, it shall rest upon the concerned appointing authorities of the state government.

IMPORTANT INFORMATION WITH REGARD TO AGE CRITERION AND QUALIFICATIONS

I. The Vice Chancellor shall have the power to permit age relaxation for reasons to be recorded in writing for a maximum of six months for PG courses and three months for UG courses.

II. The age bar shall not apply in the case of Defense personnel if any such category is specified at the time of admission for any particular course as per the rules in force at that time.

III. Age bar shall not apply in case of Non subsidized seats, Defense personnel, State Government/ Government of India nominees for the MBA program.

IV. Age relaxation shall be granted up to a maximum of 5 years to persons with disabilities in admission to various courses in accordance with UGC letter No. 6-1/2002 (CPP-II). III dated July 6, 2006.

V. Candidates who have appeared or are appearing in the qualifying examination and whose results are yet to be declared can also appear in the SPU Entrance Test, provided they acquire the required eligibility and qualifications by the time of admission.

ENTRANCE TEST FEE

S. No.	Name of Program	Fee in Rs.
01	MSc. (Physics/ Botany/ Zoology/ Chemistry/ Mathematics) M.A. (English/ Hindi/ Political Science/ History) M.Com.	General: Rs 700/- SC/ST/IRDP/Antyodaya/EWS/PWD: Rs 350/-
02	MCA	General: Rs 1000/- SC/ST/IRDP/Antyodaya/EWS/PWD: Rs 500/-
03	MBA	General: Rs 1000/- SC/ST/IRDP/EWS/PWD: Rs 500/-
04	BBA/BCA	General: Rs 500/- SC/ST/IRDP/EWS/PWD: Rs 250/-
05	B.Ed.	General/General (EWS)/OBC & their Sub-Categories (BPL/IRDP): Rs 1100/- SC/ST & their Sub-Categories (BPL/IRDP) and PWD: Rs 550/-

IMPORTANT DATES

Sr. No.	Activity	Dates
1.	Launch of online application form	03/04/2025
2.	Last Date of submitting applications including payment of fees	03/05/2025
3.	Generation of Admit Card	05/05/2025 onwards
4.	Conduct of Entrance tests	12/05/2025 to 01/06/2025

ENTRANCE TEST DATES

S. No.	Name of Program	Date and time of test
1.	MBA	12-05-25 from 11:00 am to 01:00 pm
2.	BCA	12-05-25 from 11:00 am to 01:00 pm
3.	MCA	12-05-25 from 03:00 pm to 05:00 pm
4.	BBA	12-05-25 from 03:00 pm to 05:00 pm
5.	MA English	13-05-25 from 11:00 am to 01:00 pm
6.	MA Hindi	13-05-25 from 03:00 pm to 05:00 pm
7.	B.Ed.	18-05-25 from 11.00 am to 01.00 pm
8.	M.Sc. Chemistry	29-05-25 from 11:00 am to 01:00 pm
9.	MA Political Science	29-05-25 from 11:00 am to 01:00 pm
10.	M.Sc. Physics	29-05-25 from 03:00 pm to 05:00 pm
11.	MA History	29-05-25 from 03:00 pm to 05:00 pm
12.	M.Sc. Zoology	01-06-25 from 11:00 am to 01:00 pm
13.	M.Sc. Mathematics	01-06-25 from 11:00 am to 01:00 pm
14.	M.Sc. Botany	01-06-25 from 03:00 pm to 05:00 pm
15.	M.Com.	01-06-25 from 03:00 pm to 05:00 pm

***Note: The dates of Entrance Exams can be changed. In that case the information will be made available on the University Website.**

EXAMINATION TEST STATIONS

S. No.	Name of Program	Test Stations	
1.	B.Ed.	1. Mandi 2. Shimla 3. Nahan	4. Kangra 5. Hamirpur
2.	MBA	1. Mandi 2. Kangra	3. Shimla
3.	BBA/BCA/MCA MA (English/Hindi/Political Science/History) M.Com. MSc (Chemistry/Physics/Zoology/Mathematics/Botany)	1. Mandi 2. Kullu	3. Sarkaghat 4. Jogindernagar

Note:

- The dates of Entrance Exams can be changed. In that case the information will be made available on the University Website.
- The examination centers may increase or decrease as per the requirement.

SYLLABUS OF ENTRANCE TEST

BBA

Medium of entrance test: English
Number of questions: 100 MCQs
(25 questions from each unit)
Duration of exam: 02:00 Hours

UNIT-I

English language

English comprehensions; Vocabulary; Fill in the blanks; Synonyms and Antonyms; Idioms & Phrases; Rearrangement of words in sentences; Rearrangement of sentence in paragraph; Spelling mistakes.

UNIT-II

Quantitative Aptitude

Square roots; Percentage; HCF and LCM; Ratio and proportion; Compound and simple interest; Fractions and decimals; Data Interpretation; Partnership.

UNIT-III

Reasoning Ability

Number test; Series test; Mathematical operations; Statement arguments; Statement conclusion; Logical diagram (Venn diagram); Logical word sequence test; Coding and decoding test; Insert missing sequence test; Direction and distance test.

UNIT-IV

General Awareness

Business and general awareness; Trade awareness of world and India; Sports; Current affairs; Economic study.

BCA

Medium of entrance test: English
Number of questions: 100 MCQs
(25 questions from each unit)
Duration of exam: 02:00 Hours

UNIT-I

English

Use of articles and prepositions, Idioms and phrases, Synonyms & Antonyms, reading comprehension, Sentence sequence (jumbled sentences), Completion of a sentence (with choices), Choice of appropriate word to fill in the blanks (with options), odd one out.

UNIT-II

Mathematics (+2 level)

Algebra, Set Theory, Co-ordinate Geometry, Calculus, Vector, Trigonometry, Probability and Statistics, Linear Programming.

UNIT-III

Logical Reasoning

Number Systems, Percentages, Profit & Loss, Interests, Time-Distance, Time-Work, Data Interpretation, mensuration, direction, calendar, series, graphs, charts, table, Coding and

decoding, Analogies, Statement and Assumption, Statement and Conclusion, Cause and Effect, Logical Deduction Letter and Symbol Series, Visual-Spatial Reasoning, Statistics.

UNIT-IV

General Awareness

India: Government, Constitution, laws, Politics, Achievements, Famous People, Organization, History, Geography, States.Sports, Cinema, Awards & Recognitions.

World: Countries, Leaders, Organizations, Summits.Fundamentals of Science & Information Technology, Latest Trends and Technology.

B.Ed.

Medium of entrance test: Bilingual

Number of questions:150 MCQs

Duration of exam: 02:00 Hours

UNIT-I (30 questions)

General Awareness (Mainly HP & India)

Himachal Pradesh: Geography, literacy, famous historical places, fairs and festivals, history, social life and customs, art and architecture, demography, transportation, communication and economy.

India: Geography (important facts), education, population, famous historical places, fairs and festivals, freedom struggle (important facts), Constitution of India (important facts).

UNIT-II (20 +20 = 40 questions)

Language & Comprehension (Hindi & English)

Spot the error, Closed and Comprehension Passage, Antonyms, Synonyms, Shuffling of Sentence, One word substitution.

UNIT-III(20 questions)

Logical Reasoning

Seating arrangement, Calendars, Number and letter series, Binary Logic, Clocks, Venn Diagrams, Blood Relations, Cubes.

UNIT-IV(20 questions)

Knowledge of National Commission & Committees of Education

National Commissions, Education Committees, Government Schemes of Education.

UNIT-V(40 questions)

Teaching Aptitude & Attitude

Teaching Technique Skills, Student Handling Skills.

MA English

Medium of entrance test: English

Number of questions: 100 MCQs

(25 questions from each unit)

Duration of exam: 02:00 Hours

UNIT-I

History of English and Indian Literatures: Major Authors, Texts, Literary Movements.

Indian Writing in English: Major Authors, Texts including English translations, History.

UNIT-II

Literary Terms: Allegory, Ballad, Blank Verse, Comedy, Dissociation of Sensibility, Dramatic Monologue, Elegy, Enlightenment, Epic, Fancy and Imagination, Imitation, Intentional Fallacy, Motif, Ode, Onomatopoeia, Paradox, Plot, Figures of Speech, Satire, Soliloquy, Sonnet, Tragedy, Wit, (etc.)

Literary Genres: Fiction and Non-Fiction, Life writings, Diary, Drama, Essay, Novel, Poetry, Prose, Short Story, Epic, Travelogue, Science Fiction, (etc.)

UNIT-III

Comparative Literature and Translations Studies: Concepts, Theories, Texts.

UNIT-IV

Literary Criticism and Theory: Classical and Modern Criticism, Marxism, Structuralism and Post structuralism, Feminism, Eco-criticism, Post Colonialism Awareness of Current Literary Trends, Events, Awards etc.

MA Hindi

Medium of entrance test: Hindi
Number of questions: 100 MCQs
(25 questions from each unit)
Duration of exam: 02:00 Hours

खण्ड1 :

हिंदी साहित्य का काल विभाजन और नामकरण, हिंदी साहित्य का इतिहास (आदिकाल से आधुनिक काल तक)प्रमुख रचनाकार ,रचनाएँ ,और प्रवृतियाँ

खण्ड2 :

हिंदी साहित्य की विविध विधाएं एवं रचनाकार (उपन्यास ,कहानी ,नाटक ,निबंध ,आलोचना एवं अन्य गदय विधाएं), प्रयोजन मूलक हिंदी के विविध रूप

खण्ड3 :

जनसंचार माध्यमों में हिंदी (समाचार पत्र और हिंदी ,विज्ञापन और हिंदी ,रेडियो एवं टेलिविज़न में हिंदी)

खण्ड4 :

भारतीय काव्य शास्त्र (शब्द शक्ति ,काव्य हेतु ,काव्य प्रयोजन एवं काव्य लक्षण), हिंदी व्याकरण (संधि , समास ,काल ,वाक्य विन्यास)

MA History

Medium of entrance test: Bilingual
Number of questions: 100 MCQs
(25 questions from each unit)
Duration of exam: 02:00 Hours

UNIT-I

History of Ancient India form earliest time to AD 1200

Geographical background of India, survey of sources: literary, archaeology and foreign accounts.

Stone Age: Tool techniques and uses Ceramic Assemblage, Numismatics, Epigraphy, Monuments as a source of ancient Indian history.

State and polity: Vedic and later Vedic phase, transition to state / Mahajanapadas, Mauryan political Structure and administration, state and statecraft, nature of dhamma and decline.
History in the deep south: Sangam literature, new nation of kingship, Chola, Pandya and Chera in Tamilakam.
Central Asian Contract and mutual impact: Political setting in the north- west India, rise of the power of Indo-Greeks, Shakas, Parthians and Kushan empire.
Sunga, Kanav and Satavahanadynastios, nature of Satavahana state: Administrative structure of the state during Satavahana.
Imperial Guptas: Political background, expansion, consolidation, administration and the disintegration/invasion of Hunas.
Vakatakas of Deccan and their administration, Maukharis and Yasodharman of Kanauj and Karkota of Kashmir
Harshavardhan and changing political scenario in north India, literary activities of Harshavardhan, relation with Pulakeshin II, decline of Harsh's empire
Kingdoms in the deccan and south: Political situation, rise of the Chalukyas, Pallavas and Pandyas, conflicts, administration and polity
Transition to early medieval India: Changing perspectives, emergence of Rajputs: Debates on origin, proliferation of Rajput clans and their political & military system
Rise of the Gurjara-Pratiharas, tripartite struggle, emergence of Rashtrakutas: Administration and polity
Cholas in Southeast Asia, state and administration

UNIT-II

Medieval Indian History from AD 1200 to AD 1707

Characterizing Medieval India, survey of sources. The Arabs, the Ghaznavids and Ghorids in the north- west
Foundation and consolidation of the Delhi sultanate, mamluk rulers, problem of legitimacy, Khalji revolution, expansion, consolidation and innovative measures of Khaljis and Tughluqs
Rise of Mongol in central Asia, conquests & expansion: Mongol policies of Delhi sultans; deccan policy of Aluaddin Khalji and Muhammad-bin-Tughlaq
The regional powers: Characteristics features of the regional states in north India, Malwa, Jaunpur, Rajputana and Gujrat
Rise of independent kingdoms: Establishment & consolidation of Bahmani and Vijaynagar, inter conflict. The greatness and achievement of Vijaynagar empire; conflict between afagis and dakhnts in Bahmani kingdom
Timur's invasion and downfall of the Delhi sultanate
Lodi Empire, first battle of Panipat and establishment of Mughal empire, Humayun's difficulties 8. Emergence of Sher Shah and his administration
Consolidation of Mughal empire under Akbar, rajputs policies of Akbar and Jahangir, Mughals deccan policies
Mughal State: Abul Fazl's concept of monarchy, experiment of din-i-ilaht and its critique, Mughal-Rajput relation in the sixteenth-seventeenth centuries
War of succession, Aurangzeb's Rajput and deccan policy; agrarian crisis and unrest: revolts of Jats, Satnamis and Sikhs; interpretations of the Mughal decline

Emergence of regional powers in 18th century, rise of the Maratha power, Shivaji & his administration

UNIT-III

Modern Indian History from 1707 to 1947

a. Trends in the historiography of eighteenth-century India
b. Foreign trade and early forms of exactions from Bengal, battles
c. Rise of British power in India, 1757-1857
d. Pre-1857 resistance and rebellion
e. Uprising of 1857: Causes and consequences
f. Early phase of nationalism (1885-1905): Rise of the middle-class consciousness, foundation of the Indian National Congress, methods
g. Assertive phase of nationalism (1905-1917): Partition of Bengal, Swadeshi, Revolutionary movement and home rule agitation Mass Nationalism (1917-1930): The appeal of Gandhi, Rowlatt Satyagraha, Jallianwala Bagh massacre,
h. Khilafat and Non-Cooperation movement Pre-Independence phase of nationalism (1930-1945): Civil Disobedience, Salt Satyagraha, Cripps Mission, Quit India movement and the INA
i. Peasant, tribal and workers movements
j. People's movements in the Princely States
k. Rise and growth of Communalism: Ideologies and practices. Negotiations for independence and Partition

UNIT-IV

History of Himachal Pradesh from earliest time to AD 1971

i. Early Himachal: Tribalism to State Formation Emergence of Chamba (Champaka), Kangra (Trigarta) and Kulu (Kuluta)
ii. Relations and Confrontations with medieval States of North India
iii. Himachal Hill States in the early Nineteenth Century
iv. The Gorkha invasion: Process of repulsion; British and the Gorkhas; Treaty of Segauli, Consequences of the Anglo-Gorkha War of 1814-15
v. Himachal under the British: reorganization of the 'Hill States'
vi. Grant of sanads and territorial aggression
vii. British political and administrative policies
viii. Penetration and mechanisms of control
ix. Network of communication: The Hindustan-Tibet Road and Kalka-Simla Railway Line
x. 1857 and Himachal.
xi. Popular protest and social reform movements in Himachal Pradesh from 1839-1948; agitations against the British and the hill rajas, the questions of begar and reet
xii. Praja Mandal, Freedom movements and peasant protests, Pajhota Andolan
xiii. The birth of modern Himachal: 1947-71: party politics and re-organization.

MA Political Science

Medium of entrance test: Bilingual
Number of questions: 100 MCQs
(25 questions from each unit)
Duration of exam: 02:00 Hours

UNIT-I

Political Theory (Concepts of liberty; Equality; Feminism Ideology).
Modern Indian Political Thought (Ram Mohan Roy; Gandhi; Ambedkar)

UNIT-II

Public Policies in India (Models; Process; Types).
General Issues of Contemporary Relevance (Global Justice; Nationalism; Climate Change).

UNIT-III

Comparative Government and Politics (Political Culture; Political Parties; Electoral Systems; Approaches/Models; Types of Regimes)
Western Political Philosophy (Plato; Aristotle; Locke; Karl Marx).

UNIT-IV

Indian Government and Politics (Preamble; Making of the Constituent Assembly; Constitutional Provisions; Parliament; Cabinet; Prime Minister; President; Fundamental Rights; Fundamental Duties; Directive Principles of State Policy)

MBA

Medium of entrance test: English
Number of questions: 100 MCQs
(25 questions from each unit)
Duration of exam: 02:00 Hours

UNIT-I

General Knowledge

India: Government, Constitution, laws, Politics, Achievements, Famous People, Organization, History, Geography, States, Sports, cinema, awards & recognitions.
World: Countries, Leaders, Organizations, Summits, Fundamentals of Science & information technology.

UNIT-II

English Language Skills

Grammar: Filling the blanks, Synonyms, Antonyms, Vocabulary, odd one out, sentence correction, meaning of words, Idioms & phrases etc.
Reading and Comprehension: read passages and answer the multiple-choice questions.

UNIT-III

Reasoning & Numerical Skills

Assertion and reasons, Cause and Effect, Assumption-Premise-Conclusion, Critical reasoning, Analytical & Logical reasoning, Coding and decoding, Family tree, Statements and Conclusions, Statements and assumptions, Visual reasoning Symbol Based problems, etc.
Algebra, Mean and Properties, LCM, HCF, Mean, mode, median, Number Systems, Percentages, Profit & Loss, Interests, Time-Distance, Time-Work, Data, Interpretation, mensuration, direction, calendar, series, graphs, charts, table etc.

UNIT-IV

Business Environment Awareness

World Economy, Indian Economy, Industry, Banking, Trade, Famous business tycoons & industrialists, corporate associations BSE & NSE, logos & tags lines of different companies. The latest who's who, latest government policies affecting the industry altogether etc.Familiarities with abbreviations of business houses, latest tie-ups of national and international companies and business achievements etc. Business and economy current affairs, Fundamentals of Economics, Commerce & Trade etc.

MCA

Medium of entrance test: English
Number of questions: 100 MCQs
Duration of exam: 02:00 Hours

UNIT-I (10 questions)

English

Use of articles and prepositions, Idioms and phrases, Synonyms & Antonyms, reading comprehension, Sentence sequence (jumbled sentences), Completion of a sentence (with choices), Choice of appropriate word to fill in the blanks (with options), odd one out.

UNIT-II (20 questions)

Mathematics

Algebra, Set Theory, Co-ordinate Geometry, Calculus, Vector, Trigonometry, Probability and Statistics, Linear Programming.

UNIT-III (20 questions)

General logical ability & aptitude

Number Systems, Percentages, Profit & Loss, Interests, Time-Distance, Time-Work, Data Interpretation, mensuration, direction, calendar, series, graphs, charts, table, Coding and decoding, Analogies, Statement and Assumption, Statement and Conclusion, Cause and Effect, Logical Deduction Letter and Symbol Series, Visual-Spatial Reasoning, Statistics

UNIT-IV (50 questions)

Computer Awareness

Computer Basics: Organization of a computer, Central Processing Unit (CPU), Structure of instructions in CPU, input/output devices, computer memory, memory organization backup back-up devices.

Data Representation: Representation of characters, integers and fractions, binary and hexadecimal representations, Binary Arithmetic: Addition, subtraction, division, multiplication, single arithmetic and two complement arithmetic, floating-point representation of numbers, Boolean algebra, truth tables, Venn diagrams.

Computer Architecture: Block structure of computers, communication between the processor and I/O devices. Flow chart and Algorithm, Fundamentals of Operating System and Basics of Internet & Social Media tools. Latest trends and technologies.

MCom

Medium of entrance test: English
Number of questions: 100 MCQs

(25 questions from each unit)
Duration of exam: 02:00 Hours

UNIT-I

Financial Accounting; Cost and Management Accounting; Accounting concepts and conventions; Capital and Revenue Expenditure; Issue of Shares and Debentures; Accounting for Material, Labour and Overheads; Process and Contract Costing; Marginal and Standard Costing; Budgeting and Budgetary Control.

UNIT-II

Business Statistics & Mathematics; Primary and secondary data; Measures of Central tendency and Dispersion; Probability-Sampling and Sampling Techniques; Correlation and Regression.; Set Theory; Simple and Compound interest.

UNIT-III

Business Management & International Business; Planning, Process and Types of Plans; Decision making and forecasting; Organization Structure; Importance and types of Communication; Meaning and Importance of Multinational Corporations.
Business orientations: Ethnocentric, Polycentric and Geocentric; Liberalization, Privatization and Globalization; SAARC, EU, NAFTA, ASEAN, OECD- Structure and Functions of WTO.

UNIT-IV

Managerial Economics & Company Law; Demand and Law of demand, Demand Schedule and Demand Curve; Production and Cost Analysis- Market structure Analysis; Incorporation of a Company, Articles of Association and Memorandum of Association; Issue of shares, Company Secretary: Qualification, Appointment and Rights and Duties.

MSc Botany

Medium of Entrance Test: English
Number of Questions:100 MCQ type
(25 questions from each unit)
Duration of Exam: 02:00 Hours

UNIT-I

Discovery, general structure and replication of viruses. Discovery, general characteristics, cell structure, reproduction and genetic recombination in bacteria. Algae, Fungi and Lichens: General characteristics, ecology, distribution, range of thallus organization and reproduction, cell wall composition, nutrition, reproduction and classification. Bryophytes and Pteridophytes: General characteristics of bryophytes, adaptations to land habit, range of thallus organization, classification. General characteristics of pteridophytes and early land plants, classification, morphology, anatomy and reproduction, heterospory and seed habit, stelar evolution. Gymnosperms: General characteristics, classification, morphology, anatomy and reproduction of major groups. Ecological and economic importance of viruses, bacteria, algae, fungi, lichens, bryophytes, pteridophytes and gymnosperms. Plant identification, classification and nomenclature, herbarium and botanical gardens. Taxonomic literature and keys. Taxonomic evidences from cytology, phytochemistry and molecular data. Taxonomic hierarchy and botanical nomenclature. Principles and rules of ICN. Typification. Principle of priority. Classification systems: artificial, natural, phylogenetic, APG. Numerical taxonomy. Structural

organization of flower: Function of floral parts, structure of anther and pollen, microsporogenesis, male gametophyte, structure and types of ovules, megasporangium, embryo sacs, pollination, fertilization, double fertilization. Seed structure and function. Embryo and endosperm, polyembryony.

UNIT-II

The cell theory; prokaryotic and eukaryotic cells. Structure and functions of cell organelles. DNA packaging in eukaryotes, euchromatin and heterochromatin. Structure and functions of cell membrane and cell wall. Cell Cycle and cell division. Mitosis and Meiosis and their molecular controls. Structure and function of DNA and RNA. Transformation and transduction experiments. Types of DNA. DNA replication in prokaryotes and eukaryotes. Transcription and translation in prokaryotes and eukaryotes. Genetic code. Regulation of gene expression in prokaryotes and eukaryotes. Terminologies in genetics. Mendel's laws of Inheritance. Post Mandelian genetics and gene interactions. Pedigree analysis. Cytoplasmic Inheritance. Male sterility. Multiple allelism, Pleiotropism, Chromosome theory of Inheritance. Sex-determination and Sex-linked Inheritance. Linkage and crossing over. Quantitative inheritance. Mutations and chromosomal aberrations. Ecology and its importance, Soil: Origin, formation, composition, soil profile. Water: States of water in the environment, precipitation types. Light and temperature, Shelford law of tolerance. Adaptations in xerophytes and hydrophytes. Plant communities: Characters, ecotone and edge effect, succession processes and types (hydrosere and xerosere). Ecosystem: Structure, energy flow trophic organization, food chains and food webs, ecological pyramids, production and productivity. Biogeochemical cycling.

UNIT-III

Plant physiology and its applications. Diffusion. Osmosis, Water potential. Transpiration. Guttation. Mechanism of stomatal movements. Essential elements, macro and micronutrients. Transport of ions across cell membrane. Translocation in phloem. Phloem loading and unloading. Photosynthetic pigments, Photosystem I and II, reaction center, Electron transport and mechanism of ATP synthesis; C3, C4 and CAM pathways of carbon fixation. Glycolysis, anaerobic respiration, TCA cycle; Oxidative phosphorylation, Glyoxylate, Oxidative Pentose Phosphate Pathway. Enzyme structure, properties and functions, mechanism of enzyme catalysis and inhibition. Biological nitrogen fixation. Nitrate and ammonia assimilation. Discovery and physiological roles of auxins, gibberellins, cytokinins, ABA and ethylene. Photoperiodism. Phytochrome. Vernalization. Concept, scope and importance of biotechnology: Introduction to r-DNA, cloning vehicles, gene transfer techniques in plants, transgenic plants, Agarose electrophoresis, Northern, Southern and Western Blotting, DNA Fingerprinting; Molecular DNA markers i.e. RAPD, RFLP, SNPs; DNA sequencing, PCR and Reverse Transcriptase-PCR. ELISA, Hybridoma and monoclonal antibodies, ELISA and Immunodetection. Molecular diagnosis of human disease, Human gene therapy. Tissue culture techniques. Micropropagation. Haploid production. Endosperm culture. Meristematic and permanent tissues. Root and shoot apical meristems. Simple and complex tissues. Structure of dicot and monocot root stem and leaf. Epidermis, cuticle, stomata. Secondary Growth and vascular cambium. Anomalous secondary growth.

UNIT-IV

Principles of microscopy (light microscopy, fluorescence microscopy, confocal microscopy, electron microscopy). Flow cytometry. Chromosome banding, FISH. Cell fractionation and

centrifugation types. Radioisotopes: Use in biological research, auto-radiography. Spectrophotometry: Principle and its application in biological research. Principle of Chromatography, Paper chromatography; Column chromatography, TLC, GLC, HPLC, Ionexchange chromatography; Molecular sieve chromatography; Affinity chromatography. Characterization of proteins and nucleic acids: Mass spectrometry; X-ray diffraction; X-ray crystallography; Characterization of proteins and nucleic acids; Electrophoresis: AGE, PAGE, SDS-PAGE. Plants in human welfare: Concept of centres of origin. Morphology, origin, uses and general account of wheat, rice, pulses, vegetables, spices, beverage plants, oil and sugar yielding plants, fibre yielding plants and medicinal plants. Plant breeding systems. Modes of reproduction in crop plants. Acclimatization. Selection methods for self-pollinated, cross pollinated and vegetatively propagated plants. Hybridization, inbreeding depression and heterosis. Role of mutations, polyploidy, distant hybridization and biotechnology in crop improvement. Brief introduction to biofertilizers, gardening, floriculture, mushroom cultivation technology and ethnobotany.

MSc Chemistry

Medium of entrance test: English
Number of questions: 100 MCQs
(25 questions from each unit)
Duration of exam: 02:00 Hours

UNIT-I

Fundamentals of Organic Chemistry:

Physical Effects, Electronic Displacements: Inductive Effect, Electromeric Effect, Resonance and Hyperconjugation. Cleavage of Bonds: Homolysis and Heterolysis. Structure, shape and reactivity of organic molecules: Nucleophiles and electrophiles. Reactive Intermediates: Carbocations, Carbanions and free radicals. Strength of organic acids and bases: Comparative study with emphasis on factors affecting pK values. Aromaticity: Benzenoids and Hückel's rule.

Aliphatic Hydrocarbons: Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure.

Alkanes:

Preparation: Catalytic hydrogenation, Wurtz reaction, Kolbe's synthesis, from Grignard reagent. Reactions: Free radical Substitution: Halogenation.

Alkenes:

Preparation: Elimination reactions: Dehydration of alkenes and dehydrohalogenation of alkyl halides (Saytzeff's rule); cis alkenes (Partial catalytic hydrogenation) and trans alkenes (Birch reduction). Reactions: cis-addition (alk. $KMnO_4$) and trans-addition (bromine), Addition of HX (Markownikoff's and anti-Markownikoff's addition), Hydration, Ozonolysis, oxymecuration-demercuration, Hydroboration-oxidation.

Alkynes: Preparation: Acetylene from CaC_2 and conversion into higher alkynes; by dehalogenation of tetra halides and dehydrohalogenation of vicinal-dihalides.

Aromatic hydrocarbons:

Preparation (Case benzene): from phenol, by decarboxylation, from acetylene, from benzene sulphonic acid. Reactions: (Case benzene): Electrophilic substitution: nitration, halogenation

and sulphonation. Friedel-Craft's reaction (alkylation and acylation) (upto 4 carbons on benzene). Side chain oxidation of alkyl benzenes (upto 4 carbons on benzene).

Alkyl Halides (Upto 5 Carbons):

Types of Nucleophilic Substitution (SN1, SN2 and SNi) reactions. Preparation: from alkenes and alcohols. Reactions: hydrolysis, nitrite & nitro formation, nitrile & isonitrile formation, Williamson's ether synthesis. Aryl Halides Preparation: (Chloro, bromo and iodo-benzene case): from phenol, Sandmeyer & Gattermann reactions. Reactions (Chlorobenzene): Aromatic nucleophilic substitution (replacement by –OH group) and effect of nitro substituent. Benzyne Mechanism: KNH2/NH3 (or NaNH2/NH3). Reactivity and Relative strength of C-Halogen bond in alkyl, allyl, benzyl, vinyl and aryl halides.

Amines (Aliphatic and Aromatic): (Upto 5 carbons - Preparation: from alkyl halides, Gabriel's Phthalimide synthesis, Hofmann Bromamide reaction. Reactions: Hofmann vs. Saytzeff elimination, Carbylamine test, Hinsberg test, reaction with HNO2, Schotten – Baumann Reaction. Electrophilic substitution (case aniline): nitration, bromination, sulphonation. Diazonium salts: Preparation: from aromatic amines. Reactions: conversion to benzene, phenol, dyes.

Carbohydrates:

Classification and General Properties, Glucose and Fructose (open chain and cyclic structure), Determination of configuration of monosaccharides, absolute configuration of Glucose and Fructose, Mutarotation, ascending and descending in monosaccharide. Structure of disaccharides (sucrose, maltose, lactose) and polysaccharides (starch and cellulose) excluding their structure elucidation.

UNIT-II

Postulates of Kinetic Theory of Gases and derivation of the kinetic gas equation. Deviation of real gases from ideal behaviour, compressibility factor, causes of deviation. van der Waals equation of state for real gases. Boyle temperature (derivation not required). Critical phenomena, critical constants and their calculation from van der Waals equation. Andrew's isotherms of CO2. Maxwell Boltzmann distribution laws of molecular velocities and molecular energies (graphic representation – derivation not required) and their importance. Temperature dependence of these distributions. Most probable, average and root mean square velocities (no derivation). Collision cross-section, collision number, collision frequency, collision diameter and mean free path of molecules. Viscosity of gases and effect of temperature and pressure on coefficient of viscosity (qualitative treatment only). Liquids Surface tension and its determination using stalagmometer. Viscosity of a liquid and determination of coefficient of viscosity using Ostwald viscometer. Effect of temperature on surface tension and coefficient of viscosity of a liquid (qualitative treatment only).

Solids State Chemistry:

Forms of solids. Symmetry elements, unit cells, crystal systems, Bravais lattice types and identification of lattice planes. Laws of Crystallography - Law of constancy of interfacial angles, Law of rational indices. Miller indices. X-Ray diffraction by crystals, Bragg's law. Structures of NaCl, KCl and CsCl (qualitative treatment only). Defects in crystals. Chemical Kinetics The concept of reaction rates. Effect of temperature, pressure, catalyst and other factors on reaction rates. Order and molecularity of a reaction. Derivation of integrated rate equations for zero, first and second order reactions (both for equal and unequal concentrations

of reactants). Half–life of a reaction. General methods for determination of order of a reaction. Concept of activation energy and its calculation from Arrhenius equation. Theories of Reaction Rates: Collision theory and Activated Complex theory of bimolecular reactions. Comparison of the two theories (qualitative treatment only).

Solutions: Thermodynamics of ideal solutions: Ideal solutions and Raoult's law, deviations from Raoult's law – non-ideal solutions. Vapour pressure-composition and temperature composition curves of ideal and non-ideal solutions. Distillation of solutions. Lever rule. Azeotropes. Partial miscibility of liquids: Critical solution temperature; effect of impurity on partial miscibility of liquids. Nernst distribution law and its applications, solvent extraction.

UNIT-III

Phase Equilibrium Phases, components and degrees of freedom of a system, criteria of phase equilibrium. Gibbs Phase Rule and its thermodynamic derivation. Derivation of Clausius – Clapeyron equation and its importance in phase equilibria. Phase diagrams of one-component systems (water and sulphur) and two-component systems involving eutectics, congruent and incongruent melting points (lead-silver, NaCl-H2O and Mg-Zn only). Conductance:

Conductivity, equivalent and molar conductivity and their variation with dilution for weak and strong electrolytes. Kohlrausch law of independent migration of ions. Transference number and its experimental determination using Hittorf and Moving boundary methods. Ionic mobility. Applications of conductance measurements: determination of degree of ionization of weak electrolyte, solubility and solubility products of sparingly soluble salts, ionic product of water, hydrolysis constant of a salt. Conductometric titrations (only acid base).

Electrochemistry: Reversible and irreversible cells. Concept of EMF of a cell. Measurement of EMF of a cell. Nernst equation and its importance. Types of electrodes. Standard electrode potential. Electrochemical series. Thermodynamics of a reversible cell, calculation of thermodynamic properties: ΔG, ΔH and ΔS from EMF data. Calculation of equilibrium constant from EMF data. Concentration cells with transference and without transference. Liquid junction potential and salt bridge. pH determination using hydrogen electrode and quinhydrone electrode.

Chemical Energetics: Review of thermodynamics and the Laws of Thermodynamics. Important principles and definitions of thermochemistry. Concept of standard state and standard enthalpies of formations, integral and differential enthalpies of solution and dilution. Calculation of bond energy, bond dissociation energy and resonance energy from thermochemical data. Variation of enthalpy of a reaction with temperature – Kirchhoff's equation. Statement of Third Law of thermodynamics and calculation of absolute entropies of substances.

Chemical Equilibrium: Free energy change in a chemical reaction. Thermodynamic derivation of the law of chemical equilibrium. Distinction between ΔG and ΔG^o, Le Chatelier's principle. Relationships between Kp, Kc and Kx for reactions involving ideal gases.

Ionic Equilibria: Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant and ionic product of water. Ionization of weak acids and bases, pH scale, common ion effect. Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions. Solubility and solubility product of sparingly soluble salts – applications of solubility product principle.

UNIT-IV

Chemical Bonding and Molecular Structure: Ionic Bonding: General characteristics of ionic bonding. Energy considerations in ionic bonding, lattice energy and solvation energy and their importance in the context of stability and solubility of ionic compounds. Statement of Born-Landé equation for calculation of lattice energy, Born-Haber cycle and its applications, polarizing power and polarizability. Fajan's rules, ionic character in covalent compounds, bond moment, dipole moment and percentage ionic character. Covalent bonding- VB Approach: Shapes of some inorganic molecules and ions on the basis of VSEPR and hybridization with suitable examples of linear, trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements. Concept of resonance and resonating structures in various inorganic and organic compounds. MO Approach: Rules for the LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combinations of atomic orbitals, nonbonding combination of orbitals, MO treatment of homonuclear diatomic molecules up to Ne (including idea of s-p mixing) and heteronuclear diatomic molecules such as CO, NO and NO+. Comparison of VB and MO approaches.

Hydrogen: Unique position of Hydrogen in the periodic table, isotopes, ortho and para hydrogen, Industrial production, Hydrides and their chemistry, Heavy water, Hydrogen bonding, Hydrates.

S-Block Elements: Periodicity of elements with respect to electronic configuration, atomic and ionic size, ionization enthalpy, electron gain enthalpy, electronegativity (Pauling Scale). General characteristics of s-block elements like density, melting points, flame coloration and reducing character, solvation and complexation tendencies and solutions of metals in liquid ammonia.

P- Block Elements: Comparative studies including diagonal relationship of group 13 and 14 elements. Borohydrides, Hydrides, oxide and oxy-acids and halides of boron, borax, Borazine, allotropic forms of carbon, fullerenes, carbides of calcium and silicon. Hydrides, oxides, oxoacids and halides of nitrogen. Allotropic forms of phosphorous. Hydrides, halides, oxides and oxyacids of phosphorous. Basic properties of halogens and interhalogen compounds, pseudohalogens and poly halides.

Noble Gases: Occurrence of noble gases, History of discovery of noble gases and isolation of noble gases from air. Preparation properties and structure of important compounds of noble gases- fluorides, oxides, oxyfluoride of xenon (valence bond structure only). Krypton difluoride and clathrate compounds of noble gases.

Transition Elements (3d series): Chemistry of elements of 3d metals Oxidation states displayed by Cr, Fe, Co, Ni and Co. A study of the following compounds (including preparation and important properties); Peroxo compounds of Cr, K2Cr2O7, KMnO4, K4[Fe (CN)6], sodium nitroprusside, [Co (NH3)6] Cl3, Na3[Co (NO2)6]. General group trends with special reference to electronic configuration, variable valency, colour, magnetic and catalytic properties, ability to form complexes and stability of various oxidation states (Latimer diagrams) for Mn, Fe and Cu.

Lanthanides and actinides: Electronic configurations, oxidation states, colour, magnetic properties, lanthanide contraction, separation of lanthanides and actinides (ion exchange method only).

Coordination Chemistry: Valence Bond Theory (VBT): Inner and outer orbital complexes of Cr, Fe, Co, Ni and Cu (coordination numbers 4 and 6). Structural and stereoisomerism in

complexes with coordination numbers 4 and 6. Drawbacks of VBT. IUPAC nomenclature of coordination compounds.

Organometallic Compounds: Definition and Classification with appropriate examples based on nature of metal-carbon bond (ionic, s, p and multi centre bonds). Structures of methyl lithium, Zeiss salt and ferrocene. EAN rule as applied to carbonyls. Preparation, structure, bonding and properties of mononuclear and polynuclear carbonyls of 3d metals. p-acceptor behaviour of carbon monoxide. Synergic effects (VB approach)- (MO diagram of CO can be referred to for synergic effect to IR frequencies).

Crystal Field Theory: Crystal field effect, octahedral symmetry. Crystal field stabilization energy (CFSE), Crystal field effects for weak and strong fields. Tetrahedral symmetry. Factors affecting the magnitude of CF splitting. Spectrochemical series. Comparison of CF Splitting for Octahedral and tetrahedral complexes, Tetragonal distortion of octahedral geometry. Jahn-Teller distortion, Square planar coordination.

MSc Mathematics

Medium of entrance test: English
Number of questions: 100 MCQs
(25 questions from each unit)
Duration of exam: 02:00 Hours

UNIT-I

Algebra: Groups, subgroups, Abelian groups, non-abelian groups, cyclic groups, permutation groups; Normal subgroups, Lagrange's Theorem for finite groups, group homomorphism and quotient groups, Rings, Subrings, Ideal, Prime ideal; Maximal ideals; Fields, quotient field.

Vector spaces, Linear dependence and Independence of vectors, basis, dimension, linear transformations, matrix representation with respect to an ordered basis, Range space and null space, rank-nullity theorem; Rank and inverse of a matrix, determinant, solutions of systems of linear equations, consistency conditions. Eigenvalues and eigenvectors. Cayley-Hamilton theorem.

Symmetric, Skew symmetric, Hermitian, Skew-Hermitian, Orthogonal and Unitary matrices.

UNIT-II

Real Analysis: Sequences and series of real numbers. Convergent and divergent sequences, bounded and monotone sequences, Convergence criteria for sequences of real numbers, Cauchy sequences, absolute and conditional convergence; Tests of convergence for series of positive terms-comparison test, ratio test, root test, Leibnitz test for convergence of alternating series. Functions of one variable: limit, continuity, differentiation, Rolle's Theorem, Cauchy's Taylor's theorem. Interior points, limit points, open sets, closed sets, bounded sets, connected sets, compact sets; completeness of R, Power series (of real variable) including Taylor's and Maclaurin's, domain of convergence, term-wise differentiation and integration of power series.

Functions of two real variable: limit, continuity, partial derivatives, differentiability, maxima and minima. Method of Lagrange multipliers, Homogeneous functions including Euler's theorem.

Complex Analysis: Functions of a complex Variable, Differentiability and analyticity, Cauchy Riemann Equations, Power series as an analytic function, properties of line integrals, Goursat Theorem, Cauchy theorem, consequence of simply connectivity, index of a closed curves.

Cauchy's integral formula, Morera's theorem, Liouville's theorem, Fundamental theorem of Algebra Harmonic functions.

UNIT-III

Integral Calculus: Integration as the inverse process of differentiation, definite integrals and their properties, Fundamental theorem of integral calculus. Double and triple integrals, change of order of integration. Calculating surface areas and volumes using double integrals and applications. Calculating volumes using triple integrals and applications.

Differential Equations: Ordinary differential equations of the first order of the form y'=f (x,y). Bernoulli's equation, exact differential equations, integrating factor, Orthogonal trajectories, Homogeneous differential equations-separable solutions, Linear differential equations of second and higher order with constant coefficients, method of variation of parameters. Cauchy-Euler equation.

UNIT-IV

Vector Calculus: Scalar and vector fields, gradient, divergence, curl and Laplacian. Scalar line integrals and vector line integrals, scalar surface integrals and vector surface integrals, Green's, Stokes and Gauss theorems and their applications.

Linear Programing: Convex sets, extreme points, convex hull, hyper plane & polyhedral Sets, convex function and concave functions, Concept of basis, basic feasible solutions, Formulation of Linear Programming Problem (LPP), Graphical Method of LPP, Simplex Method.

MSc Physics

Medium of entrance test: English
Number of questions: 100 MCQs
(25 questions from each unit)
Duration of exam: 02:00 Hours

UNIT-I

Mathematical Methods: Calculus of single and multiple variables, partial derivatives, Jacobian, imperfect and perfect differentials, Taylor expansion, Fourier series. Vector algebra, Vector Calculus, Multiple integrals, Divergence theorem, Green's theorem, Stokes' theorem. First order equations and linear second order differential equations with constant coefficients. Matrices and determinants, Algebra of complex numbers.

Mechanics and General Properties of Matter: Newton's laws of motion and applications, Velocity and acceleration in Cartesian, polar and cylindrical coordinate systems, uniformly rotating frame, centrifugal and Coriolis forces, Motion under a central force, Kepler's laws, Gravitational Law and field, Conservative and non- conservative forces. System of particles, Center of mass, equation of motion of the CM, conservation of linear and angular momentum, conservation of energy, variable mass systems. Elastic and inelastic collisions. Rigid body motion, fixed axis rotations, rotation and translation, moments of Inertia and products of Inertia, parallel and Perpendicular axes theorem. Principal moments and axes. Kinematics of moving fluids, equation of continuity, Euler's equation, Bernoulli's theorem.

UNIT-II

Oscillations, Waves and Optics: Differential equation for simple harmonic oscillator and its general solution. Superposition of two or more simple harmonic oscillators. Lissajous

figures. Damped and forced oscillators, resonance. Wave equation, traveling and standing waves in one-dimension. Energy density and energy transmission in waves. Group velocity and phase velocity. Sound waves in media. Doppler Effect. Fermat's Principle. General theory of image formation. Thick lens, thin lens and lens combinations. Interference of light, optical path retardation. Fraunhofer diffraction. Rayleigh criterion and resolving power. Diffraction gratings. Polarization: linear, circular and elliptic polarization. Double refraction and optical rotation.

UNIT-III

Kinetic theory, Thermodynamics: Elements of Kinetic theory of gases. Velocity distribution and equipartition of energy. Specific heat of Mono-, di- and tri-atomic gases. Ideal gas, vander-Waals gas and equation of state. Mean free path. Laws of thermodynamics. Zeroth law and concept of thermal equilibrium. First law and its consequences. Isothermal and adiabatic processes. Reversible, irreversible and quasi- static processes. Second law and entropy. Carnot cycle. Maxwell's thermodynamic relations and simple applications. Thermodynamic potentials and their applications. Phase transitions and Clausius-Clapeyron equation. Ideas of ensembles, Maxwell- Boltzmann, Fermi-Dirac and Bose Einstein distributions.

Modern Physics: Inertial frames and Galilean invariance. Postulates of special relativity. Lorentz transformations. Length contraction, time dilation. Relativistic velocity addition theorem, mass energy equivalence. Blackbody radiation, photoelectric effect, Compton effect, Bohr's atomic model, X-rays. Wave-particle duality, Uncertainty principle, the superposition principle, calculation of expectation values, Schrödinger equation and its solution for one-, two- and three-dimensional boxes. Solution of Schrödinger equation for the one-dimensional harmonic oscillator. Reflection and transmission at a step potential, Pauli exclusion principle. Structure of atomic nucleus, mass and binding energy. Radioactivity and its applications. Laws of radioactive decay.

UNIT-IV

Electricity and Magnetism**:** Coulomb's law, Gauss's law. Electric field and potential. Electrostatic boundary conditions, Solution of Laplace's equation for simple cases. Conductors, capacitors, dielectrics, dielectric polarization, volume and surface charges, electrostatic energy. Biot-Savart law, Ampere's law, Faraday's law of electromagnetic induction, Self and mutual inductance. Alternating currents. Simple DC and AC circuits with R, L and C components. Displacement current, Maxwell's equations and plane electromagnetic waves, Poynting's theorem, reflection and refraction at a dielectric interface, transmission and reflection coefficients (normal incidence only). Lorentz Force and motion of charged particles in electric and magnetic fields.

Solid State Physics, Devices and Electronics: Crystal structure, Bravais lattices and basis. Miller indices. X-ray diffraction and Bragg's law Intrinsic and extrinsic semiconductors, variation of resistivity with temperature. Fermi level. p-n junction diode, I-V characteristics, Zener diode and its applications, BJT: characteristics in CB, CE, CC modes. Single stage amplifier, two stage R-C coupled amplifiers. Simple Oscillators: Barkhausen condition, sinusoidal oscillators. OPAMP and applications: Inverting and non-inverting amplifier. Boolean algebra: Binary number systems; conversion from one system to another system; binary addition and subtraction. Logic Gates AND, OR, NOT, NAND, NOR

exclusive OR; Truth tables; combination of gates; de Morgan's theorem.

MSc Zoology

Medium of entrance test: English
Number of questions: 100 MCQs
(25 questions from each unit)
Duration of exam: 02:00 Hours

UNIT-I

Diversity of Animals (Non-Chordates& Chordates)

Kingdom Protista: General characters and classification up to classes; Locomotory organelles and locomotion in Protozoa; Phylum Porifera : General characters and classification up to classes; Phylum Cnidaria: General characters and classification up to classes; Phylum Platyhelminthes: General characters and classification up to classes; Life history of *Taenia solium*; Phylum Nemathelminthes: General characters and classification up to classes; Life history of *Ascaris lumbricoides* and its parasitic adaptations; Phylum Annelida: General characters and classification up to classes; Metamerism in Annelida; Phylum Arthropoda: General characters and classification up to classes, Vision in Arthropoda, Metamorphosis in Insects; Phylum Mollusca: General characters and classification up to classes; Torsion in gastropods, Phylum Echinodermata: General characters and classification up to classes; Water-vascular system in Asteroidea.

Protochordates: General features and phylogeny of Protochordata; General features of Agnatha and classification of cyclostomes up to classes; Pisces: General features and classification up to orders, Osmoregulation in ishes; Amphibia: General features and classification up to orders; Parental care; Reptiles: General features and classification up to orders; Poisonous and non-poisonous snakes, Biting mechanism in snakes; Aves: General features and Classification up to orders, Flight adaptations in birds; Mammals : Classification up to orders; Origin of mammals.

UNIT-II

Comparative Anatomy and Development Biology of Vertebrates

Integumentary System: Derivatives of integument w.r.t. glands and digital tips; Skeletal System; Evolution of visceral arches; Digestive System: Brief account of alimentary canal and digestive glands; Respiratory System: Brief account of Gills, lungs, air sacs and swim bladder; Circulatory System: Evolution of heart and aortic arches; Urinogenital System: Succession of kidney, Evolution of urinogenital ducts; Nervous System: Comparative account of brain; Sense Organs: Types of receptors.

Gametogenesis: Spermatogenesis and oogenesis w.r.t. mammals, vitellogenesis in birds; Fertilization: external (amphibians), internal (mammals), blocks to polyspermy; Early development of frog and humans (structure of mature egg and its membranes, patterns of cleavage, fate map, up to formation of gastrula); Types of morphogenetic movements; Fate of germ layers; Implantation of embryo in humans; Formation of human placenta and functions, other types of placenta on the basis of histology; Metamorphic events in frog life cycle and its hormonal regulation; Control of Development: Intercellular communication, cell movements and cell death.

UNIT-III

Animal Physiology and Biochemistry

Nerve and muscle: Structure of a neuron, resting membrane potential, graded potential, origin of action potential and its propagation in myelinated and non-myelinated nerve fibres, ultrastructure of skeletal muscle, molecular and chemical basis of muscle contraction; Digestion: Physiology of digestion in the alimentary canal; Absorption of carbohydrates, proteins, lipids; Respiration: Pulmonary ventilation, Respiratory volumes and capacities, Transport of Oxygen and carbon dioxide in blood; Excretion :Structure of nephron, Mechanism of Urine formation, Counter-current Mechanism; Cardiovascular system: Composition of blood, Hemostasis, Structure of Heart, Origin and conduction of the cardiac impulse, Cardiac cycle ; Reproduction and Endocrine Glands: Physiology of male reproduction: hormonal control of spermatogenesis; Physiology of female reproduction, Hormonal control of menstrual cycle; Structure and function of pituitary, thyroid, Parathyroid, pancreas and adrenal.

Carbohydrate Metabolism: Glycolysis, Krebs Cycle, Pentose phosphate pathway, Gluconeogenesis, Glycogen metabolism, Review of electron transport chain; Lipid Metabolism: β oxidation of palmitic acid; Protein metabolism: Transamination, Deamination and Urea Cycle; Enzymes: Introduction, Mechanism of action, Inhibition and Regulation

UNIT-IV

Genetics and Evolution

Introduction to Genetics : Mendel's work on transmission of traits, Genetic Variation, Molecular basis of Genetic Information; Mendelian Genetics and its Extension; Principles of Inheritance, Chromosome theory of inheritance, Incomplete dominance and co-dominance, Multiple alleles, Lethal alleles, Epistasis, Pleiotropy, sex linked inheritance, extra-chromosomal inheritance; Linkage and crossing over, Recombination frequency as a measure of linkage intensity, two factor and three factor crosses, Interference and coincidence; Mutations: Chromosomal Mutations: Deletion, Duplication, Inversion, Translocation, Aneuploidy and Polyploidy; Gene mutations: Induced versus Spontaneous mutations, Back versus Suppressor mutations; Sex Determination :Chromosomal mechanisms, dosage compensation.

History of Life: Major Events in History of Life; Introduction to Evolutionary Theories: Lamarckism, Darwinism, Neo-Darwinism; Direct Evidences of Evolution: Types of fossils, Incompleteness of fossil record, Dating of fossils, Phylogeny of horse; Processes of Evolutionary Change ; Organic variations; Isolating Mechanisms; Natural selection (Example: Industrial melanism); Types of natural selection (Directional, Stabilizing, Disruptive), Artificial selection Section; Species Concept Biological species concept (Advantages and Limitations); Modes of speciation (Allopatric, Sympatric) ; Macro-evolution : Macro-evolutionary Principles (example: Darwin's Finches); Extinction: Mass extinction (Causes, Names of five major extinctions), Role of extinction in evolution.

GENERAL INSTRUCTIONS TO THE CANDIDATES

i. The university reserves the right to conduct or not to conduct entrance exams for any or all of the courses.

ii. The University shall try to allot the examination center as per choice of the candidate. However, it is at the discretion of the University to allot any examination center to the candidate including cancellation of any examination center if the number of candidates for that center are few.

iii. Before applying, the candidates must ensure that they fulfill the required eligibility criteria as far as age, educational qualifications, etc. are concerned.

iv. The university shall follow the reservation guidelines of the government while making admissions to various courses being offered at the university.

v. The admit cards will not be sent by post to any candidate. The same shall be downloaded by the candidates from the University website. Any important information pertaining to the entrance exam, admit card, instructions to be followed during the examination, etc. shall be sent to the registered mobile number and the registered email ID of the candidate. The candidates should constantly remain in touch with their registered email, mobile and official website of the university so as to receive any updates regarding the entrance test.

vi. There will be no negative marking in SPUCET-2025 for all the courses.

vii. Appearing in Entrance Test does not give right of admission to any course. Admission in any course shall be subject to eligibility on the basis of age, qualifications, performance in the entrance test, performance in the interview or group discussion and past academic credentials, wherever applicable. After the admission of a candidate in any course, if it is found at a later stage that the candidate has sought admission on the basis of forged or fake documents, his admission shall stand cancelled, including the initiation of appropriate action against such candidate.

viii. Candidates are not allowed to carry any digital items, such as mobile phones, watches, etc., jewelry or any expensive material to the examination center as the university shall not be responsible for its safety.

ix. Appropriate action as per law shall be initiated against candidates found indulging in unfair means such as impersonation or copying/cheating during the entrance exam.

x. The benefit of reservation under various categories shall be available only to Bonafide Himachali candidates.

INSTRUCTIONS FOR FILLING THE ONLINE APPLICATION FORM

A. Before proceeding to apply, the candidates must ensure that they fulfill the required eligibility criterion in terms of age, qualifications etc.:

1. The Applicant must have a Scanned copy of recent photograph with the following specifications.
   - **i.** The photograph must be a passport-size, colored photograph.
   - **ii.** The photograph must be taken in full-face view, directly facing the camera.
   - **iii.** A photograph should have no shadows or red eyes.
   - **iv.** The size should be 10 KB to 200 KB.
   - **v.** The photograph should be in JPG, JPEG format only.
2. Scanned copy of the applicant's signature with the following specifications:
   - **i.** The applicant should sign with black ink on white paper and get the signature scanned.
   - **ii.** The signature must be signed only by the applicant and not by any other person.
   - **iii.** The size should be 3 KB to 30KB.
   - **iv.** The scanned signature should be in JPG, JPEG format only.
3. Create an email account if you don't have one.
4. You must give a mobile number in basic details. If you don't have a mobile number, please enter your guardian's mobile number for any further correspondence in this regard.

B. Instructions for filling out the online application form

Instructions regarding filling the online application form are available on SPUCET-2025 Portal. Click on "Online Admissions: 2025-26" on the University website to access the SPUCET-2025 portal.

Note: Before proceeding further, please make sure that all the fields are filled in correctly in the confirmation screen before clicking the submit button.

INSTRUCTIONS FOR FILLING THE OMR ANSWER SHEET

Instructions for Marking/darkening the bubbles in the OMR Answer Sheet:

a) Use blue/black ball point pens for filling the sheets.

b) Darken the bubbles completely. Don't put a tick mark or a cross mark where it is specified that you fill the bubbles completely. Half-filled or over-filled bubbles will not be read by the software.

c) Never use pencils to mark your answers.

d) Never use whiteners to rectify filling errors as they may disrupt the scanning and evaluation process.

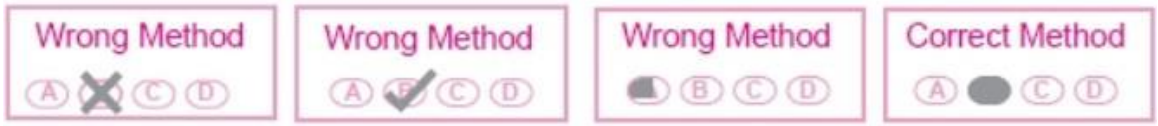
e) Writing on the OMR Sheet is permitted on the specified area only and even small mark on other than specified area may create problem during the Evaluation.

f) Do not fold the OMR Sheet.

g) Multiple markings will be treated as invalid response (i.e. negative marking, if negative is applicable).

h) If you have darkened more than one bubble/option, the answer will be treated as wrong answer even if one of the options happens to be a correct answer and no marks will be awarded for that particular question.

e. g.



SIDE - 1

ANSWER SHEET

FILL IN THE FOLLOWING ENTRIES WITH BALL POINT PEN ONLY

TEST BOOKLET NUMBER

ROLL NUMBER

NAME OF THE CANDIDATE (IN CAPITAL LETTERS)

CENTRE NUMBER

CATEGORY

INSTRUCTIONS FOR MARKING ON SIDE- 2

USE BALL POINT PEN ONLY

1. Use only **Ball Point Pen** to completely darken the Circle.
2. Darken the CIRCLE(S) of each question as shown in example below.

CORRECT METHOD	WRONG METHODS
① ● ③ ④	⊘ ⊘ ● ●

3. Answer option if darkened cannot be changed / erased.
4. Make the marks only in the spaces provided. Please do not make any stray mark on the answer sheet.
5. Rough work must not be done on the Answer Sheet.
6. Mark your answer only in the appropriate space against the number corresponding to the question you are answering.

EXAMPLE : HOW TO FILL AND MARK ON SIDE - 2 (WITH BALL POINT PEN ONLY)

If your Roll number is 21563224, fill in as below :

ROLL NUMBER

2	1	5	6	3	2	2	4

If your Test Booklet Code is C, Please fill in as below :

TEST BOOKLET CODE

C

If your response to Question Number 16 is 2, Please mark as below:

Q. NO.	RESPONSE
16.	① ● ③ ④

SIGNATURE OF THE CANDIDATE

SIGNATURE OF THE INVIGILATOR

SIDE - 2

TEST BOOKLET CODE

(A) (B) (C) (D)

ROLL NUMBER

322903

ANSWER SHEET NUMBER

Q. No.	Response	Q. No.	Response	Q. No.	Response	Q. No.	Response	Q. No.	Response	Q. No.	Response
1	① ② ③ ④	51	① ② ③ ④	101	① ② ③ ④	151	① ② ③ ④	201	① ② ③ ④	251	① ② ③ ④
2	① ② ③ ④	52	① ② ③ ④	102	① ② ③ ④	152	① ② ③ ④	202	① ② ③ ④	252	① ② ③ ④
3	① ② ③ ④	53	① ② ③ ④	103	① ② ③ ④	153	① ② ③ ④	203	① ② ③ ④	253	① ② ③ ④
4	① ② ③ ④	54	① ② ③ ④	104	① ② ③ ④	154	① ② ③ ④	204	① ② ③ ④	254	① ② ③ ④
5	① ② ③ ④	55	① ② ③ ④	105	① ② ③ ④	155	① ② ③ ④	205	① ② ③ ④	255	① ② ③ ④
6	① ② ③ ④	56	① ② ③ ④	106	① ② ③ ④	156	① ② ③ ④	206	① ② ③ ④	256	① ② ③ ④
7	① ② ③ ④	57	① ② ③ ④	107	① ② ③ ④	157	① ② ③ ④	207	① ② ③ ④	257	① ② ③ ④
8	① ② ③ ④	58	① ② ③ ④	108	① ② ③ ④	158	① ② ③ ④	208	① ② ③ ④	258	① ② ③ ④
9	① ② ③ ④	59	① ② ③ ④	109	① ② ③ ④	159	① ② ③ ④	209	① ② ③ ④	259	① ② ③ ④
10	① ② ③ ④	60	① ② ③ ④	110	① ② ③ ④	160	① ② ③ ④	210	① ② ③ ④	260	① ② ③ ④
11	① ② ③ ④	61	① ② ③ ④	111	① ② ③ ④	161	① ② ③ ④	211	① ② ③ ④	261	① ② ③ ④
12	① ② ③ ④	62	① ② ③ ④	112	① ② ③ ④	162	① ② ③ ④	212	① ② ③ ④	262	① ② ③ ④
13	① ② ③ ④	63	① ② ③ ④	113	① ② ③ ④	163	① ② ③ ④	213	① ② ③ ④	263	① ② ③ ④
14	① ② ③ ④	64	① ② ③ ④	114	① ② ③ ④	164	① ② ③ ④	214	① ② ③ ④	264	① ② ③ ④
15	① ② ③ ④	65	① ② ③ ④	115	① ② ③ ④	165	① ② ③ ④	215	① ② ③ ④	265	① ② ③ ④
16	① ② ③ ④	66	① ② ③ ④	116	① ② ③ ④	166	① ② ③ ④	216	① ② ③ ④	266	① ② ③ ④
17	① ② ③ ④	67	① ② ③ ④	117	① ② ③ ④	167	① ② ③ ④	217	① ② ③ ④	267	① ② ③ ④
18	① ② ③ ④	68	① ② ③ ④	118	① ② ③ ④	168	① ② ③ ④	218	① ② ③ ④	268	① ② ③ ④
19	① ② ③ ④	69	① ② ③ ④	119	① ② ③ ④	169	① ② ③ ④	219	① ② ③ ④	269	① ② ③ ④
20	① ② ③ ④	70	① ② ③ ④	120	① ② ③ ④	170	① ② ③ ④	220	① ② ③ ④	270	① ② ③ ④
21	① ② ③ ④	71	① ② ③ ④	121	① ② ③ ④	171	① ② ③ ④	221	① ② ③ ④	271	① ② ③ ④
22	① ② ③ ④	72	① ② ③ ④	122	① ② ③ ④	172	① ② ③ ④	222	① ② ③ ④	272	① ② ③ ④
23	① ② ③ ④	73	① ② ③ ④	123	① ② ③ ④	173	① ② ③ ④	223	① ② ③ ④	273	① ② ③ ④
24	① ② ③ ④	74	① ② ③ ④	124	① ② ③ ④	174	① ② ③ ④	224	① ② ③ ④	274	① ② ③ ④
25	① ② ③ ④	75	① ② ③ ④	125	① ② ③ ④	175	① ② ③ ④	225	① ② ③ ④	275	① ② ③ ④
26	① ② ③ ④	76	① ② ③ ④	126	① ② ③ ④	176	① ② ③ ④	226	① ② ③ ④	276	① ② ③ ④
27	① ② ③ ④	77	① ② ③ ④	127	① ② ③ ④	177	① ② ③ ④	227	① ② ③ ④	277	① ② ③ ④
28	① ② ③ ④	78	① ② ③ ④	128	① ② ③ ④	178	① ② ③ ④	228	① ② ③ ④	278	① ② ③ ④
29	① ② ③ ④	79	① ② ③ ④	129	① ② ③ ④	179	① ② ③ ④	229	① ② ③ ④	279	① ② ③ ④
30	① ② ③ ④	80	① ② ③ ④	130	① ② ③ ④	180	① ② ③ ④	230	① ② ③ ④	280	① ② ③ ④
31	① ② ③ ④	81	① ② ③ ④	131	① ② ③ ④	181	① ② ③ ④	231	① ② ③ ④	281	① ② ③ ④
32	① ② ③ ④	82	① ② ③ ④	132	① ② ③ ④	182	① ② ③ ④	232	① ② ③ ④	282	① ② ③ ④
33	① ② ③ ④	83	① ② ③ ④	133	① ② ③ ④	183	① ② ③ ④	233	① ② ③ ④	283	① ② ③ ④
34	① ② ③ ④	84	① ② ③ ④	134	① ② ③ ④	184	① ② ③ ④	234	① ② ③ ④	284	① ② ③ ④
35	① ② ③ ④	85	① ② ③ ④	135	① ② ③ ④	185	① ② ③ ④	235	① ② ③ ④	285	① ② ③ ④
36	① ② ③ ④	86	① ② ③ ④	136	① ② ③ ④	186	① ② ③ ④	236	① ② ③ ④	286	① ② ③ ④
37	① ② ③ ④	87	① ② ③ ④	137	① ② ③ ④	187	① ② ③ ④	237	① ② ③ ④	287	① ② ③ ④
38	① ② ③ ④	88	① ② ③ ④	138	① ② ③ ④	188	① ② ③ ④	238	① ② ③ ④	288	① ② ③ ④
39	① ② ③ ④	89	① ② ③ ④	139	① ② ③ ④	189	① ② ③ ④	239	① ② ③ ④	289	① ② ③ ④
40	① ② ③ ④	90	① ② ③ ④	140	① ② ③ ④	190	① ② ③ ④	240	① ② ③ ④	290	① ② ③ ④
41	① ② ③ ④	91	① ② ③ ④	141	① ② ③ ④	191	① ② ③ ④	241	① ② ③ ④	291	① ② ③ ④
42	① ② ③ ④	92	① ② ③ ④	142	① ② ③ ④	192	① ② ③ ④	242	① ② ③ ④	292	① ② ③ ④
43	① ② ③ ④	93	① ② ③ ④	143	① ② ③ ④	193	① ② ③ ④	243	① ② ③ ④	293	① ② ③ ④
44	① ② ③ ④	94	① ② ③ ④	144	① ② ③ ④	194	① ② ③ ④	244	① ② ③ ④	294	① ② ③ ④
45	① ② ③ ④	95	① ② ③ ④	145	① ② ③ ④	195	① ② ③ ④	245	① ② ③ ④	295	① ② ③ ④
46	① ② ③ ④	96	① ② ③ ④	146	① ② ③ ④	196	① ② ③ ④	246	① ② ③ ④	296	① ② ③ ④
47	① ② ③ ④	97	① ② ③ ④	147	① ② ③ ④	197	① ② ③ ④	247	① ② ③ ④	297	① ② ③ ④
48	① ② ③ ④	98	① ② ③ ④	148	① ② ③ ④	198	① ② ③ ④	248	① ② ③ ④	298	① ② ③ ④
49	① ② ③ ④	99	① ② ③ ④	149	① ② ③ ④	199	① ② ③ ④	249	① ② ③ ④	299	① ② ③ ④
50	① ② ③ ④	100	① ② ③ ④	150	① ② ③ ④	200	① ② ③ ④	250	① ② ③ ④	300	① ② ③ ④

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IMPORTANT HELPLINE NUMBERS

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