



GUIDE TO
SRMJEEE (UG)
B.TECH ADMISSIONS 2020



SRM
INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University u/s 3 of UGC Act, 1956)

www.srmist.edu.in



SRM

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MAKE IT IN LIFE **BIG** WITH **SRMJEEE**

IDEAL

INTER DISCIPLINARY EXPERIENTIAL ACTIVE LEARNING

Your path to a successful future begins at SRM with SRMJEEE, the only gateway for our Engineering admissions.

- IDEAL (Interdisciplinary Experiential Active Learning) equips you with Dual Specialisation
- World-class faculty and Infrastructure • International Exposure

OUR WIDE RANGE OF B.TECH PROGRAMS

LIST OF MAJORS

- Aerospace
- Automobile
- Biotechnology
- Biomedical Engineering
- Chemical
- Civil
- Computer Science
- Electrical and Electronics
- Electronics and Communication
- Information Technology
- Mechanical
- Mechatronics Engineering
- Nanotechnology
- Bio-Electronics Engineering
- Computer Science and Business Systems (in association with TCS)
- Electrical and Computer Engineering
- Electronics and Computer Engineering
- Mechanical and Automation
- Mechanical and Smart Manufacturing

• Students can pursue any Engineering Majors as a Minor

LIST OF SPECIALISATIONS

- Automotive Electronics
- Regenerative Medicine
- Genetic Engineering
- Artificial Intelligence and Machine Learning
- Big Data Analytics
- Cloud Computing / Mobile Based Applications
- Computer Networks
- Cyber Security
- Internet of Things (IOT)
- Software Engineering
- Instrumentation Engineering
- Robotics
- Desalination and Water Treatments
- Computer Applications
- Information Technology

• Choice of Minors and Specialisations will vary according to the campuses

LIST OF MINORS

- Cyber Law
- Economics
- English Studies
- Entrepreneurship and Innovation
- Finance and Accounting
- History
- Industrial Psychology
- Intellectual Property Rights (IPR) and Patents Right (PR)
- Journalism
- Management
- Physical and Mental Health
- Project Management
- Psychology
- Sociology

All engineering programs offered in Kattankulathur, Ramapuram, Vadapalani and Delhi-NCR Ghaziabad campuses are approved by AICTE

- Multicultural Learning Environment
- Students from all states of India
- 200 students from SRM go to SAP every year
- International Students from 64 Countries
- 165 MOUs with 33 countries
- 2+2 programs with our global partners
- SRM Innovation & Incubation centre (SRMIIC) funded by National Science and Technology Entrepreneurship Development, DST, Govt. of India

GLOBAL RECOGNITION - SRMIST

- QS I-GUAGE Diamond rated Institute

NATIONAL RECOGNITION - SRMIST

- NAAC "A++" grade • MHRD Category I
- Ranked 32nd under University category by NIRF
- ARIIA Ranked **Third** under the Category of Private or Self financed Institutions.



Quacquarelli Symonds (QS)

also awarded SRM 5 stars for **Teaching, Employability and Inclusiveness**

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IMPORTANT INFORMATION

SRM Joint Entrance Examination - Engineering (SRMJEEE-UG) for B.Tech is common for the SRM Group of Universities viz., SRM Institute of Science & Technology, SRM University AP – Amaravati and SRM University Haryana - Sonapat.

SRMJEEE (UG) is mandatory for admission to B.Tech Programmes.

SRM Joint Counselling Committee for Admissions (SRMJCCA) is empowered to undertake joint counselling for SRMIST (all four campuses), SRM-AP Amaravati and SRM-Haryana Sonapat for admission to B.Tech, M.Tech and Ph.D programmes.

Application

Applying to SRM is simple with the following options:

Option 1: Apply online with e-payment.

Option 2: Fill the OMR form and send it to us by safe means.

Cost of Application: Rs: 1100/-

Important dates to remember

Last Date for Receipt of OMR Application	29 th February 2020
Last Date for online Application	30 th March 2020
Slot Booking for Online Entrance Examination	First week of April 2020
Online Entrance Examination (Tentative)	12 th April to 20 th April 2020
Publication of Result (Tentative)	Fourth Week of April 2020
SRM Joint Counselling (Tentative)	First or Second week of May 2020
On Campus Enrollment	Third Week of June 2020
Commencement of Classes	Fourth Week of June 2020

Mode of entrance examination

Computer Based Test (Online)

Communication

- A Candidate's mobile number and e-mail address are mandatory as they will be used for all communications, till final enrollment is completed.
- The e-mail ID submitted in OMR must be the candidate's personal e-mail ID and will not be permitted to be changed under any circumstances.

For further details:

Contact Admissions Helpline: 044 - 2745 5510, 4743 7500.

Register at www.srmist.edu.in and verify your email ID to access SRM's Query Management System.

- Click on [Any Queries? Ask US] in your dashboard • Select query category and submit your query

Applicants are strongly advised to use SRM Query Management System (SRM-QMS), rather than email, to get quick response.

PART I - GENERAL INFORMATION

1. Eligibility

1.1 Nationality and Age

- a. Resident Indians, Non-Resident Indians (NRIs) and holders of PIO or OCI card issued by the Government of India are eligible to apply for SRMJEEE.

NRIs and holders of PIO or OCI card issued by the Government of India who are taking admission through SRMJEEE merit rank and counselling will get a prescribed scholarship on international tuition fees.

- b. Age: Candidates should have attained the age of 16 on the 31st July of the calendar year in which the 12th Board examination is to be held. Maximum age limit is 21 years.

1.2 Qualifying Examination

- a. A Pass in Higher Secondary examination (10+2 pattern) or appearing for Higher Secondary examination in the current academic year with Physics, Chemistry, Mathematics / Biology / Botany & Zoology / Biotechnology as major subjects in the full-time stream from any State Board, CBSE, ICSE, Matriculation, or NIOS.
- b. International Baccalaureate (IB) with Diploma, or an A-level with Physics, Chemistry and Mathematics / Biology / Botany & Zoology / Biotechnology as major subjects from any international school.
- c. Candidates who have completed both 10th Standard as well as 12th Standard in NIOS, are not considered for admission to any programme of SRM.

3. SRMJEEE (UG) Pattern

General	The question paper will be only in English				
Mode of Examination	Computer Based Test (Online)				
Duration of the Examination	2 hours and 30 minutes				
Types of questions	Multiple Choice Questions				
Coverage of Subjects	Physics	Chemistry	Mathematics / Biology	English	Aptitude
Number of Questions	35	35	40	5	10
Scoring Method	Each right answer carries 1 mark; No negative marking for wrong answers				
Total Marks	125				

(i) Candidates who have attempted PCMEA in SRMJEEE(UG) are eligible for all the B.Tech Degree Programs

(ii) Candidates who have attempted PCBEA in SRMJEEE(UG) are eligible for B.Tech. Biotechnology, B.Tech Biotechnology with all its specialization and B.Tech Biomedical Engineering.

- d. Minimum eligibility criteria in PCM / PCB for each campus and programme posted in the official website of the respective universities.

Note: Only those candidates who have passed the above qualifying examination in not more than 2 attempts, including an appearance for improvement will be considered for admission.

1.3 Direct Admission

To encourage and support students of exemplary talent, SRM offers direct admission and scholarships to first rank students of all the Central and State Boards in India, top 10,000 rankers in IIT JEE, top rankers in each district of Tamil Nadu and exemplary sportspersons at National and International level.

2. SRMJEEE (UG) – Test Details

- a. SRMJEEE (UG) will be conducted in Computer Based Test (Online) mode only.
- b. Test Cities: Candidates have to carefully go through the relevant list of test cities and choose their preference. (The complete list is given on pages 8 & 9 under the header Item 11a, and 11b : Test City Centres)
- c. Test Sessions / Slots: Candidates have to book the test slots of their convenience, subject to the availability of slots in a particular centre / on a particular date.
- d. The Centre of Examination and the Session, once allotted to the candidate shall not be changed under any circumstance.

Note: While every effort will be made to allot a centre

in the Test City opted by the candidate, the Institute reserves its right to allot a centre other than that of the candidate's choice.

4. Entrance Examination Rules

- a. Candidates will be taking a computer based online test at a workstation.
- b. Candidates are requested to be present at the Test Centre 30 minutes before the starting time of the test as specified in the admit card.
- c. Candidates are prohibited from carrying any personal belongings inside the exam centres including mobile and cellular phones, pagers, palm-tops, Bluetooth devices, or any electronic device which has the potential of being used for cheating or unauthorised communication during the examination.
- d. All are required to produce the Hall Ticket and the original Aadhar Card (which bears the photograph and date of birth of the candidate) at the registration desk without which entry will not be allowed.
- e. At the registration desk, the candidates identity will be verified, Hall Ticket scanned, photograph captured and only then he / she will be assigned to a computer.
- f. For working purpose, a rough sheet will be provided at the workstation. All rough work should be done on this sheet and no additional material will be given for rough work.
- g. The administrator is authorised to dismiss any candidate for the rest of the session for any of the following reasons:
 - Creating disturbance
 - Attempting to take the test on behalf of someone else
 - Talking to other examinees
 - Attempting to tamper with the computer system – either hardware or software
 - Having calculators, slide rules, pagers, cell phones, concealed microphones, wireless devices or any other material that may aid in answering questions.
- h. In addition, specific instructions given by invigilators are to be followed during the entrance examination.

5. Hall Ticket

- a. The hall ticket will be issued only to those eligible candidates who have submitted their application form complete in all respects, on or before the last date as specified.
- b. The hall ticket will contain the name, photograph and address of the candidate, address of the Test Centre allotted and test schedule.
- c. The hall ticket should be downloaded from the candidate's login / dashboard.
- d. Once received, it should be carefully examined by the candidate. If any discrepancy is noticed it should immediately be brought to the notice of the Director, Admissions.
- e. No candidate will be permitted to attend the test without a valid hall ticket. The hall ticket should be presented to the invigilators for verification.
- f. Candidate must not tamper with the hall ticket or alter any entry made therein, after it has been authenticated.
- g. The hall ticket is not transferable to any other person. Impersonation is a legally punishable offence.
- h. The hall ticket is an important document. It should be preserved and produced at the time of counselling and admission. The candidate must bring his / her Aadhar Card along with the hall ticket.**
- i. Hall Ticket not received due to application being incomplete: SRMJCCA is not responsible for informing students about their incomplete applications. Candidates are advised to double check that the application form is complete in all respects before posting it.

6. Results

- a. A merit list will be prepared based on the total marks secured in the SRMJEEE (UG).
- b. The examination result and counselling details will be published on the Institute website: **www.srmist.edu.in** and also intimated to the candidates through e-mail.

7. Admission Procedure

- a. B.Tech programmes listed on the website is indicative only. The Institute reserves the right to add and delete programmes and amend the list depending on the viability to offer the same.
- b. The admission will be purely on the basis of the performance in the entrance examination SRMJEEE (UG) conducted by SRMIST. Having been called for the entrance test and counselling does not necessarily mean acceptance of eligibility. It is the responsibility of the candidates to ascertain whether they possess the requisite eligibility for admission.
- c. Eligibility criteria such as the minimum percentage of marks in PCM / PCB or CGPA obtained by the candidate in the qualifying examination shall be as prescribed by the SRMJCCA from time to time.

Note: The aggregate percentage of marks obtained in PCM / PCB in 12th Standard or equivalent should be calculated up to 3 decimal points and should not be rounded off to the nearest integer.

- d. Academic tuition fees, hostel fees, mode of payment and refund policies will be available on the respective Institute website.
- e. The admission offered to a candidate who has been provisionally admitted to a programme will stand cancelled if he / she does not submit the relevant documents in their original pertaining to admission (such as Marks Statements, Transfer Certificate, Conduct Certificate, etc.) during enrollment before the date stipulated by the authorities.
- f. Even after admission, the management reserves all rights to cancel the candidate's admission, in case, any discrepancy is noticed on verification of facts from the original certificates / documents. The decision shall be final and binding on the candidate. SRMJCCA cannot be held responsible for any loss or damage arising out of such cancellations of admissions.
- g. Accommodation in Institute hostels will be subject to availability. The allocation will be done only after the complete payment of the tuition

fees and enrollment procedure.

- h. All disputes are subject to the jurisdiction of the courts only at Chennai.
- i. Refund Policy: Candidates are requested to visit the Institute website for the detailed refund policy, timeline and eligibility percentage of tuition fee.

8. Discontinuance / Withdrawal from the Programme after Enrollment

- a. A candidate who desires to leave the institution after joining the programme will have to submit a 'No Dues' certificate issued by competent authorities. This should be accompanied by the application for withdrawal and the original fee receipt.
- b. The original certificates will be returned only on production of 'No Dues' certificate in the prescribed form, obtained from the Administrative Office.
- c. Authority: Head of the Institution.
- d. Refund policy applies as per Institute norms irrespective of whether the student attended class(es) or not.

9. General Discipline

- a. All candidates admitted to the Institute shall maintain good conduct, pay the requisite tuition fees and other charges by the due dates, attend their classes regularly and abide by the rules and regulations of the Institute. If, at any point of time, the conduct and character of a candidate is not satisfactory or is of suspicious nature, the management reserves the right, without assigning any reason, to make him / her vacate the hostel or expel him / her from the Institute.
- b. Ragging in any form is forbidden. If anyone is found ragging his / her juniors, he / she can be rusticated from the Institute, vide UGC Regulations on curbing the menace of Ragging in Higher Educational Institutions, 2009.

PART II - INSTRUCTIONS TO FILL UP THE COMPUTERISED OMR APPLICATION FORM

Read the following instructions carefully before filling the application form. Requests for corrections will not be entertained.

1. General Instructions:

- The application form should be filled by the candidate in his / her own handwriting.
- Only the Original application should be sent.
- Application form will be machine-processed. Hence take utmost care while writing with a black ink ball-point pen in the boxes wherever provided. Corresponding to the above, darken the alphabet / numeral/ oval using only an HB pencil only.
- To change a marking, erase the darkened spot completely and make a fresh mark.
- Do not scribble, cut, tear or erase the application form. Do not put any stray pencil marks anywhere on the application form.
- Do not write, make any mark on / deface the Barcode.
- Candidate's photograph, signature, and e-mail ID are to be machine-scanned. So, paste a recent, good-quality colour photograph of you against a light coloured background. Write your e-mail ID using only a black ink ball-point pen.
- Application must be complete in all respects. An incomplete application or application filled in a language other than English will be rejected.
- Options, once filled in the application form, cannot be changed at a later stage.
- Candidates are advised to retain with them a photocopy of the filled-in application for future reference.

2. Item-wise Instructions

Item 1: Name of the Candidate

Write your name in CAPITAL LETTERS as given in your 10th Standard school certificate. Write only one letter in a box. Do not leave any blank box between the letters in a word. One box should be left blank between consecutive words of your name. If your name has several initials, leave one blank after each of them. Darken the corresponding letter of the alphabet underneath each written letter of the name. Do not prefix your name with Mr., Ms., etc.

Item 2: Gender

Shade as appropriate.

Item 3: Religion (For statistical purpose only)

Item 4: Community

Write the appropriate code in the box provided and then shade the appropriate circle to correspond with the code, for all the above items. Candidates belonging to MBC category should use the same code as OBC / BC (for statistical purpose only).

Item 5: Date of Birth

Write the date, month and year of your birth as per the English calendar and as recorded in your High School / Higher Secondary Examination certificate. Use numerals 01 to 31 for DATE, numerals 01 to 12 for MONTH, and all the four digits for the YEAR of birth. Darken the corresponding numerals for date, month and year in each column.

Item 6: State & Union Territories

Refer to list given below and enter the appropriate code in the box provided. Darken the numerals corresponding to the code.

Andhra Pradesh	11	Madhya Pradesh	24	Uttar Pradesh	37
Arunachal Pradesh	12	Maharashtra	25	Uttaranchal	38
Assam	13	Manipur	26	West Bengal	39
Bihar	14	Meghalaya	27	Andaman & Nicobar Islands (UT)	40
Chhattisgarh	15	Mizoram	28	Chandigarh (UT)	41
Delhi (NCR)	16	Nagaland	29	Dadra and Nagar Haveli (UT)	42
Goa	17	Orissa	30	Daman and Diu (UT)	43
Gujarat	18	Punjab	31	Jammu and Kashmir (UT)	44
Haryana	19	Rajasthan	32	Ladakh (UT)	45
Himachal Pradesh	20	Sikkim	33	Lakshadweep (UT)	46
Jharkhand	21	Tamil Nadu	34	Puducherry (UT)	47
Karnataka	22	Telangana	35		
Kerala	23	Tripura	36		

Item 7: Mother Tongue

Use the language codes as given below. Enter the correct code in the space provided and shade the numerals below to correspond with the code entered.

Assamese	01	Kashmiri	07
Bengali	02	Malyalam	08
English	03	Marathi	09
Gujarati	04	Marwari	10
Hindi	05	Odiya	11
Kannada	06	Punjabi	12

Sindhi	13
Tamil	14
Telugu	15
Urudu	16
Others	17

Item 8: Nationality**Item 9: Hostel Accommodation**

Write the appropriate code in the box provided and then shade the appropriate circle to correspond with the code.

Item - 10: University Preference

Choose one or more campus as per your choice.

- SRM Institute of Science and Technology – Chennai
- SRM University AP – Amaravati
- SRM University Haryana - Sonapat

The final seat allocation as per the availability of the seat and campus during counseling.

Item 11a, 11b: Test City Centres

Refer to the following list to choose two test cities (mandatory) as option1 and option 2 and write the appropriate code in the space provided. Darken the corresponding numeral under each digit. Request for change of test city will not be entertained.

State	Centre Name	Centre Code
Andaman & Nicobar	Port Blair	101
Andhra Pradesh	Amaravati	102
	Anantapur	103
	Eluru	104
	Guntur	105
	Kadapa	106
	Kakinada	107
	Kurnool	108
	Nellore	109
	Ongole	110
	Rajahmundry	111
	Tanuku	112
	Tirupati	113
	Vijayawada	114
Visakhapatnam	115	
Assam	Dibrugarh	116
	Guwahati	117
	Silchar	118
Bihar	Bhagalpur	119
	Gaya	120
	Muzaffarpur	121
	Patna	122
Chandigarh	Chandigarh	123
Chattisgarh	Bhilai	124
	Bilaspur	125
	Raipur	126
Goa	Panaji	127
Gujarat	Ahmedabad	128

State	Centre Name	Centre Code
	Rajkot	129
	Surat	130
	Vadodara	131
Haryana	Faridabad	132
	Gurgaon	133
	Hisar	134
	Sonepat	135
Himachal Pradesh	Dharamsala	136
	Shimla	137
Jammu & Kashmir	Jammu	138
	Srinagar	139
Jharkhand	Bokaro Steel City	140
	Dhanbad	141
	Jamshedpur	142
	Ranchi	143
Karnataka	Bengaluru	144
	Mangaluru	145
Kerala	Ernakulam	146
	Kannur	147
	Kollam	148
	Kottayam	149
	Kozhikodu	150
	Thiruvananthapuram	151
	Thrissur	152
Madhya Pradesh	Bhopal	153
	Gwalior	154
	Indore	155
	Jabalpur	156
	Ujjain	157
Maharashtra	Aurangabad	158

State	Centre Name	Centre Code
	Latur	159
	Mumbai	160
	Nagpur	161
	Nasik	162
	Pune	163
	Thane	164
Manipur	Imphal	165
Meghalaya	Shillong	166
New Delhi	New Delhi	167
Odisha	Berhampur	168
	Bhubaneswar	169
	Rourkela	170
	Sambalpur	171
Puducherry	Puducherry	172
Punjab	Amritsar	173
	Bhatinda	174
	Jalandhar	175
	Ludhiana	176
Rajasthan	Ajmer	177
	Alwar	178
	Bikaner	179
	Jaipur	180
	Jodhpur	181
	Kota	182
	Udaipur	183
	Sikkim	Gangtok
Tamil Nadu	Chennai - Kattankulathur	185
	Chennai - Ramapuram	186
	Chennai - Vadapalani	187
	Chidambaram	188
	Coimbatore	189
	Erode	190
	Krishnagiri	191
	Madurai	192
	Nagercoil	193
	Namakkal	194
	Salem	195
	Thanjavur	196

State	Centre Name	Centre Code
	Tiruchirappalli	197
	Tirunelveli	198
	Tiruppur	199
	Vellore	200
Telangana	Hyderabad/ Secunderabad	201
	Karimnagar	202
	Khammam	203
	Nizamabad	204
	Warangal	205
Tripura	Agartala	206
Uttar Pradesh	Agra	207
	Aligarh	208
	Allahabad	209
	Bareilly	210
	Modi Nagar, Ghaziabad	211
	Gorakhpur	212
	Jhansi	213
	Kanpur	214
	Lucknow	215
	Mathura	216
	Meerut	217
	Noida	218
	Rae Bareli	219
Varanasi	220	
Uttaranchal	Dehradun	221
	Pantnagar	222
	Roorkee	223
West Bengal	Asansol	224
	Durgapur	225
	Kolkata	226
	Siliguri	227
Overseas Centres	Dubai	228
	Doha	229
	Muscat	230
	Bahrain	231
	Kuwait	232

Item 12: Valid e-mail ID

Give your correct e-mail ID. It is mandatory to produce your correct email id (in capital letters), as all the future correspondences will be carried out through e-mail. Only one candidate can be registered with one email address.

Item 13: Photograph

Affix one recent (taken not later than a month) good quality colour photograph with a light colour background in the space provided for this purpose. Spectacles if being used regularly are allowed. The photograph should be firmly affixed to the application form. It should not be pinned or stapled. The photograph should not be larger than the space provided in the box for pasting it.

It is expected that the candidate will have the same appearance at the time of the examination and counselling as in the photograph affixed in the application form. In case his / her appearance changes, he / she would be required to bring two new photographs at the time of the examination.

Item 14: Signature

Your signature establishes your identity. Hence sign using a black ink ball-point pen, within the box provided.

Item 15: Complete Postal Address

Write the complete postal address to which any communication is to be sent. The address must include your name, C/O name and all other details including the

correct PINCODE, Phone No. with the correct STD code and Mobile number. Please note that this block will be machine scanned and therefore, it should be written very clearly and in CAPITAL LETTERS with only a black ball-point pen. In case you make any mistake, cover the entire box with an exact sized white paper slip and write your address on it. Your address must not overflow this box. The use of address of any coaching centre / Institution is strictly prohibited. If anybody uses the address of any coaching centre/Institution in his / her application form, it will be rejected.

Item 16: Name of the Parent / Guardian

Write the name of one parent or guardian in capital letters. Write only a single letter in a box. Do not leave any blank box between the letters in a name. One box should be left blank between consecutive words of the

Item 20: 12th Board / Equivalent

Refer to the list given below and write the appropriate numeral under each digit of the code.

Codes of Secondary School Education (Class 12) Boards

Name of Board	Code
Aligarh Muslim University, Aligarh	11
Andhra Pradesh Board of Intermediate Education	12
Assam Higher Secondary Education Council	13
Bihar Intermediate Education Council	14
Cambridge University	15
Central Board of Secondary Education	16
Chhattisgarh Madhyamik Shiksha Mandal	17
Council for the Indian School Certificate Examinations	18
Goa Board of Secondary and Higher Secondary Education	19
Gujarat Secondary and Higher Secondary Education	20
Haryana Board of Education	21
HP Board of School Education	22
International Baccalaureate	23
Jharkhand Academy Council	24
J&K State Board of School Education	25
Karnataka Board of Pre-University Education	26
Kerala Board of Public Examinations	27
Madhya Pradesh Board of Secondary Education	28
Maharashtra State Board of Secondary and Higher Secondary Education	29
Manipur Council of Higher Secondary Education	30
Meghalaya Board of Secondary Education	31
Mizoram Board of School Education	32
Nagaland Board of School Education	33

name. If the name has several initials, leave one box blank after each one of them.

Item 17: Parent's / Guardian's Occupation

Write the appropriate code in the box provided and then shade the appropriate circle to correspond with the code.

Item 18: Contact Mobile Number

Write your mobile number in the space provided and shade the corresponding numeral under each digit.

Item 19: Alternate Mobile Number

Write your alternate mobile number in the space provided and shade the corresponding numeral under each digit.

code in the box provided. Darken the corresponding

Name of Board	Code
National Institute of Open Schooling (NIOS)	34
Odisha Council of Higher Secondary Education	35
Punjab School Education Board	36
Rajasthan Board of Secondary Education	37
Tamil Nadu Board of Higher Secondary Education	38
Telangana State Board of Intermediate Education	39
Tripura Board of Secondary Education	40
UP Board of High School and Intermediate Education	41
Uttaranchal Shiksha Evam Pariksha Parishad	42
West Bengal Council of Higher Secondary Education	43

Item 21: Medium of Instruction

Write the appropriate code in the box provided and then shade the appropriate circle to correspond with the code.

Item 22: Mode of Study

Write the appropriate code in the box provided and then shade the appropriate circle to correspond with the code.

Item 23: Blood Group

Write the appropriate code in the box provided and then shade the appropriate circle to correspond with the code.

Item 24: Details of the Qualifying Exam passed/ appearing for

Write the relevant details such as Registration number / Roll number / Complete school address with pincode in each box clearly using only a black ball-point pen.

In case you have not yet been allotted your Registration No./ Roll No., please leave it blank.

Item 25: Where did you see our Admission Advertisement?

Please specify the Name of the Newspaper / Website (or) any other source where you have seen the Admission

Advertisement (write only in CAPITAL LETTERS)

Item 26: Declaration

The candidate must sign the declaration and fill up the place and date. Applications without signatures or with different signatures in Item 14 and Item 26 will be treated as incomplete and rejected.

The declaration by the candidate must be countersigned by the parent / guardian.

3. Submission of Application

- Last date for receipt of filled-in OMR application at the SRMIST office: 29th February, 2020.
- Applications received after the due date will not be accepted.
- The Institute will not be responsible for any delay or loss in postal transit or any irregularity.

4. Information at Different Stages

- Candidates can stay updated at every stage of the admission through SMS / e-mail if their correct mobile number has been provided in the application.
- Quote the application number in all correspondence for reference.

Login credentials for applicant dashboard: As sent to your e-mail address

Use login id and password to:

- View your application details
- Book exam slot, download and print your hall ticket
- View your results and counselling details. Download and take a printout of rank card, counselling call letter and related information for your use.
- Refer to SRM's official website to know about the courses offered and eligibility for B.Tech Programmes.

PART III: SYLLABUS FOR ENTRANCE EXAMINATION SRMJEE (UG)

B.TECH

PART 1 – PHYSICS (35 QUESTIONS)

UNIT 1: UNITS AND MEASUREMENT, MECHANICS

Units for measurement, system of units-S.I., fundamental and derived units, measurements - errors in measurement - significant figures, dimensions - dimensional analysis - applications.

Laws of Motion: Newton's laws of motion - force and inertia - impulse and momentum - law of conservation of linear momentum - applications - projectile motion - uniform circular motion - friction - laws of friction - applications - centripetal force.

Work, Energy and Power: Work - energy - potential energy and kinetic energy - power - collision - elastic and inelastic collisions.

UNIT 2: GRAVITATION, MECHANICS OF SOLIDS AND FLUIDS

Gravitation: The universal law of gravitation, acceleration due to gravity - variation of 'g' with altitude, latitude and depth - gravitation potential - escape velocity and orbital velocity - geostationary satellites - Kepler's laws of planetary motion.

Mechanics of solids and fluids: Solids - elastic behaviour, stress-strain - Hooke's law - Moduli of elasticity - relation between them - surface tension capillarity - applications - viscosity - Poiseuille's formula - Stokes law applications - streamline and turbulent flow - Reynolds number - Bernoulli's theorem - applications.

UNIT 3: ELECTROSTATICS

Electric charge - Conservation laws - Coulomb's law - principle of superposition - continuous charge distribution - electric field - electric field lines - electric dipole - electric field due to a dipole - torque on a dipole in uniform electric field - Electric flux - Gauss's theorem - field due to infinitely long straight wire - uniformly charged infinite plane sheet and uniformly charged thin spherical shell.

Electric potential - potential difference - equipotential surfaces - electrical potential energy - Dielectrics and electric polarization - capacitors and capacitance - combination of capacitors in series and in parallel - capacitance of a parallel plate capacitor with and without dielectric medium - energy stored in a capacitor

UNIT 4: CURRENT ELECTRICITY

Electric current - drift velocity - mobility - Ohm's law - V-I characteristics - electrical energy and power - electrical resistivity and conductivity - Carbon resistors - series and parallel combinations of resistors - temperature dependence - Internal resistance of a cell - potential difference and emf of a cell - combination of cells in series and in parallel - Kirchhoff's laws - applications - Wheatstone bridge - Metre bridge - Potentiometer - comparison of EMF of two cells - measurement of internal resistance of a cell.

UNIT 5: MAGNETISM AND MAGNETIC EFFECTS OF CURRENT

Earth's magnetic field and magnetic elements - magnetic field due to a magnetic dipole - torque on a magnetic dipole - tangent law, tangent galvanometer deflection magnetometer - magnetic properties of a material - dia, para and ferromagnetic materials - applications. Magnetic effects of electric current - Biot Savart's law - force on a moving charge in a uniform magnetic field - moving coil galvanometer - conversion of a galvanometer into voltmeter and ammeter.

UNIT 6: ELECTROMAGNETIC INDUCTION, ALTERNATING CURRENTS AND ELECTROMAGNETIC WAVES

Electromagnetic induction - Faraday's laws, induced EMF and current - Lenz's Law - Eddy currents - Self and mutual induction - Alternating currents, peak and RMS value of alternating current/voltage - reactance and impedance - LC oscillations - LCR series circuit - resonance - power in AC circuits - power factor - wattless current - AC generator and transformer - Electromagnetic waves - characteristics - Electromagnetic spectrum .

UNIT 7: OPTICS

Reflection of light - spherical mirrors - mirror formula - refraction of light - total internal reflection - optical fibers - refraction at spherical surfaces - lenses - thin lens formula - lensmaker's formula - magnification - power of a lens - combination of thin lenses in contact - refraction of light through a prism - Scattering of light - Microscopes and astronomical telescopes .

Wave front and Huygen's principle - reflection and refraction of plane wave at a plane surface - laws of reflection and refraction using Huygen's principle - Interference - Young's double slit experiment and expression for fringe width - diffraction due to a single

slit -width of central maximum – polarization - plane polarised light - Brewster's law.

UNIT 8: DUAL NATURE OF RADIATION AND MATTER & ATOMIC PHYSICS

Dual nature of radiation - Photoelectric effect - Hertz and Lenard's observations - Einstein's photoelectric equation-particle nature of light. Matter waves-wave nature of particles - de-Broglie relation - Davisson-Germer experiment - Alpha-particle scattering experiment-Rutherford's model of atom-Bohr model-hydrogen spectrum.

UNIT 9: NUCLEAR PHYSICS

Nuclear radius, mass, binding energy, density, isotopes, mass defect- Bainbridge mass spectrometer-nuclear forces neutron discovery – radioactivity- α , β and γ decay-half life - mean life-artificial radio activity-radio isotopes-radio carbon dating-radiation hazards. Nuclear fission-nuclear reactor-nuclear fusion-hydrogen bomb - cosmic rays-elementary particles.

UNIT 10: ELECTRONIC DEVICES

Semiconductors-doping-types-PN junction diode – biasing-diode as a Rectifier – Special purpose PN junction diodes – LED – photodiode - solar cell and zener diode - characteristics - zener diode as a voltage regulator- transistors-transistor characteristics – amplifier – gain-feedback in amplifiers-logic gates-basic logic gates-NOT, OR, AND, NOR, NAND-universal gates-De Morgan's theorems.

PART 2 – CHEMISTRY (35 QUESTIONS)

UNIT 1: SOLUTIONS

Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties - relative lowering of vapour pressure, Raoult's law, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor.

UNIT 2: ELECTROCHEMISTRY

Redox reactions, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, fuel cells, corrosion.

UNIT 3: CHEMICAL KINETICS

Rate of a reaction (Average and instantaneous), factors affecting rate of reaction: concentration, temperature, catalyst; order and molecularity of a reaction, rate law and specific rate constant, integrated rate equations and half-life (only for zero and first order reactions), concept of collision theory (elementary idea, no mathematical treatment). Activation energy, Arrhenius equation.

UNIT 4: SURFACE CHEMISTRY

Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids, catalysis, homogenous and heterogenous activity and selectivity; enzyme catalysis colloidal state distinction between true solutions, colloids and suspension; lyophilic, lyophobic multi-molecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation, emulsion - types of emulsions.

UNIT 5: GENERAL PRINCIPLES AND PROCESSES OF ISOLATION OF ELEMENTS

Principles and methods of extraction - concentration, oxidation, reduction - electrolytic method and refining;

UNIT 6: P -BLOCK ELEMENTS

Group 16 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties, dioxygen: Preparation, Properties and uses, classification of Oxides, Ozone, Sulphur - allotropic forms; compounds of Sulphur: Preparation Properties and uses of Sulphur-dioxide, Sulphuric Acid: industrial process of manufacture, properties and uses; Oxoacids of Sulphur (Structures only). Group 17 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; compounds of halogens, Preparation, properties and uses of Chlorine and Hydrochloric acid, interhalogen compounds, Oxoacids of halogens (structures only). Group 18 Elements: General introduction, electronic configuration, occurrence, trends in physical and chemical properties, uses.

UNIT 7: 'D' AND 'F' BLOCK ELEMENTS

General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first row transition metals - metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation Lanthanoids - Electronic configuration,

oxidation states, chemical reactivity and lanthanoid contraction and its consequences.

UNIT 8: COORDINATION COMPOUNDS

Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereoisomerism, importance of coordination compounds (in qualitative inclusion, extraction of metals and biological system).

UNIT 9: HALOALKANES AND HALOARENES

Haloalkanes: Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation. Haloarenes: Nature of C-X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only). Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.

UNIT 10: ALCOHOLS, PHENOLS AND ETHERS

Alcohols: Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses with special reference to methanol and ethanol.

Phenols: Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols.

Ethers: Nomenclature, methods of preparation, physical and chemical properties, uses.

UNIT 11: ALDEHYDES, KETONES AND CARBOXYLIC ACIDS

Aldehydes and Ketones: Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes, uses.

Carboxylic Acids: Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.

UNIT 12: ORGANIC COMPOUNDS CONTAINING NITROGEN

Amines: Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines.

Cyanides and Isocyanides

Diazonium salts: Preparation, chemical reactions and

importance in synthetic organic chemistry.

UNIT 13: BIOMOLECULES

Carbohydrates - Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates.

Proteins - Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes.

Vitamins - Classification and functions. Nucleic Acids: DNA and RNA.

UNIT 14: POLYMERS

Copolymerization, some important polymers: natural and synthetic like polythene, nylon polyesters, bakelite, and rubber. Biodegradable and non-biodegradable polymers.

UNIT 15: CHEMISTRY IN EVERYDAY LIFE

Chemicals in medicines - analgesics, tranquilizers antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines. Chemicals in food - preservatives, artificial sweetening agents, elementary idea of antioxidants. Cleansing agents- soaps and detergents, cleansing action

PART 3 – MATHEMATICS (40 QUESTIONS)

UNIT 1: SETS, RELATIONS AND FUNCTIONS

Sets and their representations, union, intersection and complements of sets and their algebraic properties, relations, equivalence relations, mappings, one-one, into and onto mappings, composition of mappings.

UNIT 2: COMPLEX NUMBERS AND QUADRATIC EQUATIONS

Complex numbers in the form $a+ib$ and their representation in a plane. Argand diagram. Algebra of complex numbers, modulus and argument of a complex number, square root of a complex number. Cube roots of unity, triangle inequality. Quadratic equations in real and complex number system and their solutions. Relation between roots and coefficients, nature of roots, formation of quadratic equations with given roots; symmetric functions of roots, equations reducible to quadratic equations.

UNIT 3: MATRICES, DETERMINANTS AND THEIR APPLICATIONS

Determinants and matrices of order two and three, properties of determinants, evaluation of determinants

Addition and multiplication of matrices, adjoint and inverse of matrix. Computing the rank of a matrix-test of consistency and solution of simultaneous linear equations using determinants and matrices.

UNIT 4: COMBINATORICS

Permutations and Combinations: Fundamental principle of counting: permutation as an arrangement and combination as selection, meaning of $P(n,r)$ and $C(n,r)$. Simple applications,

Mathematical Induction and its Applications: Stating and interpreting the principle of mathematical induction. Using it to prove formula and facts.

UNIT 5: ALGEBRA

Binomial theorem and its Applications: Binomial theorem for a positive integral index; general term and middle term; Binomial theorem for any index. Properties of binomial coefficients. Simple applications for approximations.

Sequences and Series : Arithmetic, geometric and harmonic progressions. Insertion of arithmetic, geometric and harmonic means between two given numbers. Relation between A.M., G.M. and H.M. arithmetic, geometric series, exponential and logarithmic series.

UNIT 6: DIFFERENTIAL CALCULUS AND ITS APPLICATIONS

Polynomials, rational, trigonometric, logarithmic and exponential functions. Inverse functions. Graphs of simple functions. Limits, continuity, differentiation of the sum, difference, product and quotient of two functions, differentiation of trigonometric, inverse trigonometric, logarithmic, exponential, composite and implicit functions, derivatives of order up to two. Applications of

Applications of Differential Calculus: Rate of change of quantities, monotonic-increasing and decreasing functions, maxima and minima of functions of one variable, tangents and normals, Rolle's and Lagrange's mean value theorems. Ordinary differential equations, their order and degree. Formation of differential equations. Solution of differential equations by the method of separation of variables. Solution of homogeneous and linear differential equations and those of the type $dy/dx + p(x)y=q(x)$

UNIT 7: INTEGRAL CALCULUS AND ITS APPLICATIONS
Integral as an anti-derivative. Fundamental integrals involving algebraic, trigonometric, exponential and

logarithmic functions. Integration by substitution, by parts and by partial fractions. Integration using trigonometric identities. Integral as limit of a sum. Properties of definite integrals. Evaluation of definite integrals; Determining areas of the regions bounded by simple curves.

UNIT 8: ANALYTICAL GEOMETRY

Straight Lines in Two Dimensions : Cartesian system of rectangular co-ordinates in plane, distance formula, area of a triangle, condition for the collinearity of three points and section formula, centroid and in-centre of a triangle, locus and its equation, translation of axes, slope of a line, parallel and perpendicular lines, intercepts of a line on the coordinate axes.

Circles in Two Dimensions: Standard form of equation of a circle, general form of the equation of a circle, its radius and centre, equation of a circle in the parametric form, equation of a circle when the end points of a diameter are given, points of intersection of a line and a circle with the centre at the origin and condition for a line to be tangent to the circle.

Conic Sections in Two Dimensions: Sections of cones, equations of conic sections (parabola, ellipse and hyperbola) in standard form, condition for $y = mx+c$ to be a tangent and point(s) of tangency.

UNIT 9 : VECTOR ALGEBRA

Vectors and scalars, addition of vectors, components of a vector in two dimensions and three dimensional space, scalar and vector products, scalar and vector triple product. Application of vectors to plane geometry.

UNIT 10: STATISTICS AND PROBABILITY DISTRIBUTION

Measures of Central Tendency and Dispersion: Calculation of mean, median and mode of grouped and ungrouped data. Calculation of standard deviation, variance and mean deviation for grouped and ungrouped data. Probability: Probability of an event, addition and multiplication theorems of probability and their applications; Conditional probability; Baye's theorem, probability distribution of a random variable; binomial and Poisson distributions and their properties.

UNIT 11: TRIGONOMETRY

Trigonometry ratios, compound angles, trigonometrical equations, solution of triangles, Trigonometrically identities and equations-Inverse trigonometric functions and their properties.

Properties of triangles, including, incentre, circumcentre and orthocenter, solution of triangles.

PART 4: BIOLOGY (40 QUESTIONS)

UNIT 1: DIVERSITY IN LIVING WORLD

Biodiversity, Importance of classifications, Taxonomy & Systematics, Concept of species and taxonomical hierarchy, Binomial nomenclature, Tools for study of Taxonomy.

Five kingdom classification: Monera, Protista and Fungi into major groups; Lichens; Viruses and Viroids. Salient features of them.

Classification of plants into major groups - Algae, Bryophytes, Pteridophytes, Gymnosperm and Angiosperm - salient and distinguishing features. Angiosperms - classification up to class, characteristic features and examples.

Classification of animals- non chordate up to phyla level and chordate up to class's level - salient and distinguishing features.

UNIT 2: STRUCTURAL ORGANIZATION IN ANIMALS AND PLANTS

Plant tissues: Morphology and modifications, Tissues, Anatomy and functions of different parts of flowering plants: Root, stem, leaf, inflorescence, flower, fruit and seed.

Animal tissues: Morphology, anatomy and functions of different systems (digestive, circulatory, Respiratory, nervous and reproductive) of an insect (cockroach)

UNIT 3: CELL STRUCTURE AND FUNCTION

Cell theory, Structure of prokaryotic and eukaryotic cell, Plant cell and animal cell. Cell envelope, cell membrane, cell wall. Cell organelles - structure and function: Endomembrane system- endoplasmic reticulum, Golgi bodies, lysosomes, vacuoles, mitochondria, ribosomes, plastids, microbodies: Cytoskeleton, cilia, flagella, centrioles. Nucleus - nuclear membrane, chromatin, nucleolus.

Chemical constituents of living cells: Biomolecules - structure and function of proteins including Enzymes- types, properties, enzyme action, carbohydrates, lipid and nucleic acids.

Cell division: Cell cycle, mitosis, meiosis and their significance.

UNIT 4: PLANT PHYSIOLOGY

Transport in plants: Movement of water, gases and nutrients, Cell to cell transport - Diffusion, active transport; Plant - water relations- Imbibition, water potential, osmosis, plasmolysis; Long distance

transport of water - Absorption, apoplast, symplast, transpiration pull, root pressure and guttation; Transpiration- Opening and closing of stomata; Uptake and translocation of mineral nutrients- Transport of food, phloem transport.

Mineral nutrition: Essential minerals, macro and micronutrients and their role, Deficiency symptoms, Mineral toxicity, Elementary idea of Hydroponics, Nitrogen metabolism

Photosynthesis: Significance - site of photosynthesis - Photochemical and biosynthetic phases of photosynthesis, Cyclic and non cyclic photophosphorylation; Chemiosmotic hypothesis; Photorespiration; C3 and C4 pathways; Factors affecting photosynthesis.

Respiration: Cellular respiration - glycolysis, fermentation (anaerobic), Krebs's cycle and electron transport system (aerobic); Energy relations - Number of ATP molecules generated; Amphibolic pathways; Respiratory quotient.

Plant growth and development: Seed germination, Phases of plant growth and plant growth rate, Conditions of growth, Differentiation, dedifferentiation and redifferentiation, Sequence of developmental process in a plant cell, Growth regulators: auxin, gibberellin, cytokinin, ethylene, ABA. Seed dormancy, Photoperiodism, Vernalisation.

UNIT 5: HUMAN PHYSIOLOGY

Digestion and absorption: Alimentary canal and digestive glands, Role of digestive enzymes and gastrointestinal hormones, Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats, Calorific value of proteins, carbohydrates and fats, Egestion; Nutritional and digestive disorders- PEM, indigestion, constipation, vomiting, jaundice, diarrhea.

Breathing and Respiration: Respiratory organs in animals, Respiratory system in humans, Mechanism of breathing and its regulation in humans- Exchange of gases, transport of gases and regulation of respiration, Respiratory volumes, Disorders related to respiration- Asthma, Emphysema, Occupational respiratory disorders.

Body fluids and circulation: Composition of blood, blood groups, coagulation of blood, Composition of lymph and its function, Human circulatory system - Structure of human heart and blood vessels, Cardiac cycle, cardiac output, ECG, Double circulation, Regulation of cardiac activity, Disorders of circulatory

- Hypertension, Coronary artery disease, Angina pectoris, Heart failure.

Excretory products and their elimination: Modes of excretion – Ammonotelism, ureotelism, uricotelism, Human excretory system–structure and function, Urine formation, Osmoregulation, Regulation of kidney function– Renin - angiotensin, Atrial Natriuretic Factor, ADH and Diabetes insipidus, Role of other organs in excretion, Disorders - Uraemia, Renal failure, Renal calculi, Nephritis, Dialysis and artificial kidney.

Locomotion and Movement: Types of movement – ciliary, flagellar, muscular, skeletal muscle – contractile proteins and muscle contraction, Skeletal system and its functions, Joints, Disorders of muscular and skeletal system - Myasthenia gravis, Tetany, Muscular dystrophy, Arthritis, Osteoporosis, Gout.

Neural control and coordination: Neuron and nerves, Nervous system in humans– central nervous system, peripheral nervous system and visceral nervous system, Generation and conduction of nerve impulse, Reflex action, Sensory perception, Sense organs, Elementary structure and function of eye and ear.

Chemical coordination and regulation: Endocrine glands and hormones, Human endocrine system -Hypothalamus, Pituitary, Pineal, Thyroid, Parathyroid, Adrenal, Pancreas, Gonads. Mechanism of hormone action, Role of hormones as messengers and regulators, Hypo-and hyperactivity and related disorders: Common disorders e.g. Dwarfism, Acromegaly, Cretinism, goiter, exophthalmic goiter, diabetes, Addison's disease.

UNIT 6: REPRODUCTION

Reproduction in Organisms: Reproduction, a characteristic feature of all organisms for continuation of species, modes of reproduction - asexual and sexual reproduction, asexual reproduction - binary fission, sporulation, budding, gemmule formation, fragmentation, vegetative propagation in plants.

Sexual Reproduction in Flowering Plants: Flower structure, development of male and female gametophytes, pollination - types, agencies and examples, out breeding devices, pollen-pistil interaction, double fertilization, post fertilization events - development of endosperm and embryo, development of seed and formation of fruit, special modes apomixis, parthenocarpy, polyembryony, Significance of seed dispersal and fruit formation.

Human Reproduction: Male and female reproductive systems, microscopic anatomy of testis and ovary,

gametogenesis - spermatogenesis and oogenesis, menstrual cycle, fertilization, embryo development up to blastocyst formation, implantation, pregnancy and placenta formation, parturition, lactation.

Reproductive Health: Need for reproductive health and prevention of Sexually Transmitted Diseases (STDs), birth control - need and methods, contraception and medical termination of pregnancy (MTP), amniocentesis, infertility and assisted reproductive technologies - IVF, ZIFT, GIFT.

UNIT 7: GENETICS AND EVOLUTION

Principles of Inheritance and Variation: Heredity and variation, Mendelian inheritance, deviations from Mendelism – incomplete dominance, co - dominance, multiple alleles and inheritance of blood groups, pleiotropy, polygenic inheritance, chromosome theory of inheritance, chromosomes and genes, Sex determination in humans, birds and honey bee, linkage and crossing over, sex linked inheritance - haemophilia, colour blindness, Mendelian disorders in humans – thalassemia, chromosomal disorders in humans, Down's syndrome, Turner's and Klinefelter's syndromes.

Molecular Basis of Inheritance: DNA as genetic material, Structure of DNA and RNA, DNA packaging and replication, Central dogma, transcription, genetic code, translation, gene expression and regulation - lac operon, genome and human and rice genome projects, DNA fingerprinting.

Evolution: Origin of life, biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences), Darwin's contribution, modern synthetic theory of evolution, mechanism of evolution - variation (mutation and recombination) and natural selection with examples, types of natural selection; Gene flow and genetic drift; Hardy - Weinberg's principle; adaptive radiation; human evolution.

UNIT 8: BIOLOGY AND HUMAN WELFARE

Human Health and Diseases: Pathogens, parasites causing human diseases (malaria, dengue, chickengunia, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control, Basic concepts of immunology – vaccines, cancer, HIV and AIDS, Adolescence - drug and alcohol abuse.

Strategies for Enhancement in Food Production: Improvement in food production, Plant breeding, tissue culture, single cell protein, Biofortification, Apiculture and Animal husbandry.

Microbes in Human Welfare: In household food processing, industrial production, sewage treatment,

energy generation and microbes as bio-control agents and bio-fertilizers. Antibiotics - production and judicious use.

UNIT 9: BIOTECHNOLOGY AND ITS APPLICATIONS

Biotechnology: Principles and processes: Genetic Engineering (Recombinant DNA Technology).

Biotechnology and its Application: Application of biotechnology in health and agriculture: Human insulin and vaccine production, stem cell technology, gene therapy, genetically modified organisms - Bt crops; transgenic animals, biosafety issues, bio piracy and patents.

UNIT 10: ECOLOGY AND ENVIRONMENT

Organisms and Populations: Organisms and environment: Habitat and niche, population and ecological adaptations, population interactions - mutualism, competition, predation, parasitism, population attributes - growth, birth rate and death rate, age distribution.

Ecosystem: Patterns, components, productivity and decomposition, energy flow, pyramids of number, biomass, energy, nutrient cycles (carbon and phosphorous), ecological succession, ecological services - carbon fixation, pollination, seed dispersal, oxygen release.

Biodiversity and its Conservation: Biodiversity - Concept, patterns, importance, loss of biodiversity, biodiversity conservation, hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, national parks, sanctuaries and Ramsar sites.

Environmental Issues: Air pollution and its control, water pollution and its control, agrochemicals and their effects, solid waste management, radioactive waste management, greenhouse effect and climate change impact and mitigation, ozone layer depletion, deforestation, any one case study as success story addressing environmental issue(s).

PART 5 – ENGLISH (5 QUESTIONS)

This part contains reading Comprehension questions. Short passages, lines from poems or dialogues will

be given as comprehension passage with a set of 5 questions. Each question will have four options to pick the correct one.

PART 6 – APTITUDE (10 QUESTIONS)

1. NUMBER SYSTEM

Properties of numbers, Divisibility rules, Unit digit, Euclid's algorithm, LCM and GCD

2. STATISTICS

Arithmetic mean, weighted mean, Geometric mean

3. PERCENTAGE

Percentage change-increase or decrease

4. PROFIT AND LOSS

Computing percentage of profit or loss and profit/loss value

5. QUADRATIC EQUATION

Nature of roots, Relationship between roots and coefficients, Solutions of quadratic equations

6. GEOMETRY

Similar triangles, Lines and angles, Circles and Quadrilaterals

7. ARRANGEMENT

Ordering, Grading and Ranking, coding and decoding

8. DIRECTION SENSE TEST

Inding direction, distance or both

9. LINEAR EQUATION

Solving simultaneous equations, Test of consistency, problems on ages

10. TRIGONOMETRY

Values of trigonometric ratios, Identities, Heights and distances

MODEL QUESTIONS – SRMJEEE(UG) - B.TECH

PART I -PHYSICS

1. One watt hour contains how many Joules?
a) 3.6×10^8 b) 3.6×10^2 c) 3.6×10^3 d) 1×10^3
2. The dimension of kinetic energy is same as that of _____
a) Force b) Pressure c) Work d) Momentum
3. A food packet is dropped from a helicopter rising upwards at a constant speed of 2m/s. How far below the helicopter the packet will be after 2 seconds? Take $g = 10\text{m/s}^2$
a) 16m b) 20m c) 24m d) 40m
4. The range of projectile when launched at an angle of 15° with the horizontal is 1.5km. What is the range of the projectile when launched at an angle of 45° to the horizontal?
a) 1.5 km b) 3.0 km c) 6.0km d) 0.75km
5. An unpolarized beam of intensity $2a^2$ passes through a Polaroid. The intensity of emergent plane polarized light is _____
a) $a^2/2$ b) $4a^2$ c) $2a^2$ d) a^2

PART II - CHEMISTRY

1. The elevation in the boiling point of a liquid is
a) dependent of both the nature and molality of the solute
b) independent of both the nature and molality of the solute
c) dependent of the nature of the solute and independent of molality of the solute
d) independent of the nature of the solute and dependent of molality of the solute
2. What is the term for the electrode where reduction reaction occurs?
a) anode b) cathode c) oxidizing agent d) reducing agent
3. In an electrochemical cell, electrons travel in which direction?
a) From the anode to the cathode through the external circuit
b) From the anode to the cathode through the porous cup
c) From the cathode to the anode through the external circuit
d) From the cathode to the anode through the porous cup
4. The compound $\text{CH}_3\text{-CH}_2\text{-NH-CH}_3$ is an example of a
a) Primary amine b) Secondary amine c) Tertiary amine d) Primary amide
5. The diazonium salts have which of the general formula?
a) $\text{RN}_2^+ \text{X}^-$ b) $\text{RN}_2^+ \text{X}_2^-$ c) $\text{RN}^+ \text{X}_2^-$ d) $\text{RN}^+ \text{X}^-$

PART III - MATHEMATICS

1. Let $X = \{a_1, a_2, \dots, a_6\}$ and $Y = \{b_1, b_2, b_3\}$. The number of functions f from X to Y such that it is onto and there are exactly three elements x in X such that $f(x) = b_1$ is
a) 75 b) 90 c) 100 d) 120
2. If the graph of $y = f(x)$ is symmetrical about lines $x = 1$ and $x = 2$, then which of the following is true?
a) $f(x + 1) = f(x)$ b) $f(x + 3) = f(x)$ c) $f(x + 2) = f(x)$ d) $f(x + 4) = f(x)$
3. For all complex numbers z of the form $z = 1 + 2ia$ where $a \in \mathbb{R}$, if $z^2 = x + iy$, then
a) $y^2 + 4x + 2 = 0$ b) $y^2 + 2x - 4 = 0$ c) $y^2 + 4x - 4 = 0$ d) $y^2 + 6x - 4 = 0$
4. If $|z - 4 + 3i| + |z + 11 - 5i| = 17$, the locus of the point ' z ' on the Argand plane is
a) an ellipse with foci $4 - 3i, 5i - 11$ b) a line
c) a segment of the line through $4 - 3i$ and $5i - 11$ d) a line, except for a segment of the line
5. Let $f(x+2) = x^3 + 2x^2 - 3x + 1$. then, $f'(3)$ equals
a) 5 b) 4 c) -6 d) 2

PART IV - BIOLOGY

1. Which plant hormone is basic in nature?
a) Auxin b) Gibberellins c) Cytokinin d) Abscisic acid
2. Delay of senescence or Richmond Lang effect is a physiological effect of
a) IAA b) CK c) GA d) C_2H_4
3. Shelf life of vegetables and cut flowers can be increased by commercial application of
a) Cytokinin b) AMO1618 c) Cyclocel d) Phosphon-D
4. In maize, hybrid vigour is exploited by
a) inducing mutations
c) crossing of two inbred parental lines
b) bombarding the protoplast with DNA
d) harvesting seeds from the most productive plants
5. 90% of blood from auricles enter into ventricles during
a) Auricular Systole
c) Ventricular Systole
b) Auricular Diastole
d) Ventricular Diastole

PART V - ENGLISH

1. "Your parents were not anxious enough to have you learn. They preferred to put you to work on a farm or at the mills, so as to have a little more money. And I? I've been to blame also. Have I not often sent you to water my flowers instead of learning your lessons?" (*This passage best expresses the writer's:*)
a) feeling of anger b) sense of guilt c) state of confusion d) feeling of fright
2. MR LAMB: I should say....to look at it.... I should say, you got burned in a fire.
DERRY: Not in a fire. I got acid all down that side of my face and it burned it all away. It ate my face up. It ate me up. And now it's like this and it won't ever be any different.
(*Derry's statement portrays a feeling of:*)
a) Exhaustion and helplessness b) Anger and revenge c) Self-pity and acceptance d) Rejection and regret
3. "You must have patience, my little girl," said the father. (*The indirect speech of this sentence is:*)
a) The father advised his daughter that she should have patience
b) The father told his daughter that she must have patience
c) The father ordered his daughter to have patience
d) The father says that she should have patience
4. "Besides, the whole school seemed so strange and solemn. But the thing that surprised me most was to see, on the back benches that were always empty, the village people sitting quietly like ourselves."
(*The underlined word means:*)
a) By the side of b) In addition to that c) On account of that d) In spite of that
5. "It seemed a long way down. Those nine feet were more like ninety, and before I touched bottom my lungs were ready to burst. But when my feet hit bottom I summoned all my strength and made what I thought was a great spring upwards." (*The passage above describes the author's experiment with:*)
a) Flying b) Skating c) Swimming d) Sailing

PART VI -APTITUDE

1. The number M39048458N is divisible by 11 and 8, where M, N are single digit numbers.
Then what is the value of M, N?
a) 7, 8 b) 8, 6 c) 6, 4 d) 5, 4
2. What is the average of first 18 multiples of 6?
a) 18 b) 6 c) 72 d) 57
3. If the radius of a sphere is doubled, what is the percentage change in its volume?
a) 800% increase b) 800% decrease c) 700% increase d) No change
4. The cost price of a pen is Rs.200 and its selling price is Rs.250. Find its profit %.
a) 20 b) 25 c) 50 d) 100
5. If a and b are the roots of the quadratic equation $x^2-2x+7=0$, what will be the value of a^2+b^2 ?
a) 20 b) 25 c) 50 d) 100

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