

# INFORMATION BULLETIN

## West Bengal Joint Entrance Examination-2023 (WBJEE-2023)

Common Entrance Test for UG Courses in Engineering/Technology, Pharmacy  
and Architecture

**Date of Examination**  
**30.04.2023 (Sunday)**

(Tentative and may be changed in extraordinary circumstances)



### **West Bengal Joint Entrance Examinations Board**

DB-118, Sector-I, Salt Lake City

Kolkata 700064

**Toll free No.- 1800-1023-781**

**1800-123-4782 (Extn. No.- 2)**

Release date: 09<sup>th</sup> December 2022

**Candidates must go through the Information  
Bulletin carefully before applying for the  
examination**

<b>IMPORTANT INSTRUCTIONS TO CANDIDATES WHILE REGISTERING FOR WBJEE-2023</b>	
<p>Once an application is received, it will be construed that the candidate agrees to all terms and conditions, rules and regulations stipulated in the Information Bulletin and in the relevant notice(s) published by the Board for the said purpose.</p> <p><b>Any application not in compliance with the conditions specified in the Information Bulletin is liable to be rejected</b></p>	
1.	Application for the examination must be done online only. No printed application form is available
2.	Ensure filling genuine application form available online only at <a href="http://www.wbjeeb.nic.in">www.wbjeeb.nic.in</a>
3.	Do not attempt to make any duplicate application
4.	<p><b>It is essential to have a valid mobile number and a unique valid email ID.</b></p> <p>All future communications by the Board will be sent to the registered mobile number and email ID. WBJEEB will not be held responsible for non-receipt of any communication due to wrong/non-existing/non-functional/changed mobile number/ email ID or due to network interruption.</p>
5.	<p>Once the registration details i.e., <b>name, father's name, mother's name, gender, domicile and date of birth</b> are entered and submitted, this information <b>cannot be changed/modified/edited under any circumstances.</b></p> <p>Also, the information must match exactly with the school/college admit cards, marksheets, certificates, photo identity cards, caste/category/income certificates etc. (as applicable) which a candidate has to produce at the time of entering the examination hall, during counselling/admission and registration with the University.</p>
6.	Do not share your application number, password, security question/answer with anyone. The Board will not be held responsible if any candidate commits the mistake which may result in negative consequences.
7.	Upload <b>scanned</b> copy of photograph and signature as per the instructions provided in the Information Bulletin. If any candidate receives any SMS/email regarding discrepancy in photograph/ signature, he/she must take corrective action immediately <b>within one day</b> . Admit cards will not be issued if these images are illegible and thus not acceptable.
8.	If any information <b>other than</b> name, father's name, mother's name, gender, domicile and date of birth given in the application needs to be corrected, the rectification may be done by the candidate only within the notified ' <b>Correction Period</b> '. The Board will not make or allow any correction thereafter.
9.	<p>The Examination Fees can be paid by Net Banking/ Debit Card/ Credit Card/ UPI only.</p> <p>Application fee for WBJEE-2023 is <b>Rs 500 (Rupees five hundred only) for General candidates and Rs 400 (Rupees four hundred only) for SC/ST/OBC-A/OBC-B candidates, plus the Bank's service charges</b> if applicable.</p> <p>SC/ST/OBC-A/OBC-B candidates availing of the concession will have to upload/submit respective certificates in given formats at the time of counselling, failing which his/her candidature will be cancelled.</p> <p><b>The fee once paid is not refundable under any circumstance.</b></p> <p><b>Do not wait for the last day to pay registration fees to avoid payment failure by Bank</b></p>

	<b>or EPG.</b>
10.	Keep copies of <b>Confirmation page and the Admit card</b> in safe custody.
11.	Candidates are requested to go through the Board's website ( <a href="http://www.wbjeeb.nic.in/wbjeeb.in">www.wbjeeb.nic.in/wbjeeb.in</a> ) regularly to update themselves for the latest information.
12.	<ul style="list-style-type: none"><li>• Appearing for the examination and even obtaining a rank do not guarantee admission.</li><li>• Applicable rules at the time of counselling will determine allotment and admission criteria.</li><li>• Candidates must make themselves aware of the latest rules and criteria for admission into different University/Institution and other specific criteria issued by the Government/Regulatory bodies from time to time.</li><li>• Board will not be responsible by any way, if any candidate fails to aware himself/herself regularly on any updated information.</li></ul>
13.	For any query regarding the examination, contact:  <b>The Controller of Examinations</b> <b>West Bengal Joint Entrance Examinations Board</b> <b>DB-118, Sector -I, Salt Lake City, Kolkata-700064</b>  <b>Examination Helpdesk: -1800-1023-781</b> <b>1800-123-4782 (Ext. No.-2)</b>  <b>Email: <a href="mailto:info@wbjeeb.in">info@wbjeeb.in</a></b>

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<b>1.0</b>	<b>Introduction</b>								
	<p><b>The West Bengal Joint Entrance Examinations Board</b></p> <p>The West Bengal Joint Entrance Examinations Board (WBJEEB) was established in 1962 by Government of West Bengal in exercise of the powers conferred under article 162 of the Constitution of India in pursuant to No. 828-Edn(T), dated 02.03.1962.</p> <p>Subsequently in 2014, the Government of West Bengal enacted the West Bengal Act XIV of 2014 to form <b>The West Bengal Joint Entrance Examinations Board</b> (hereinafter called '<b>Board</b>') and empowered it to conduct Common Entrance Examinations for selection of candidates for admission to undergraduate and postgraduate Professional, Vocational and General Degree Courses in the State of West Bengal and to conduct on-line counselling process or otherwise adopting a single-window approach.</p> <p>WBJEEB has been instrumental in the admission process based on online application and allotment through e-Counselling since 2012. It advocates fairness and transparency, ensures no-error, and adopts state-of-the-art technology.</p>								
<b>2.0</b>	<p><b>West Bengal Joint Entrance Examination-2023 (WBJEE-2023)</b></p> <p>WBJEEB will conduct OMR based Common Entrance Examination (<b>WBJEE-2023</b>) for admission in the academic session 2023-24 for Undergraduate Courses in Engineering/Technology, Pharmacy and Architecture of different Universities, Government Colleges as well as Self-Financing Engineering/Technological Institutes in the State of West Bengal.</p>								
<b>2.1</b>	<p><b>Schedule of WBJEE-2023</b></p> <table border="1" data-bbox="392 1093 1329 1440"> <thead> <tr> <th data-bbox="392 1093 754 1193">Date of Examination</th> <th data-bbox="754 1093 1034 1193">Paper/ Subject</th> <th data-bbox="1034 1093 1329 1193">Time schedule</th> </tr> </thead> <tbody> <tr> <td data-bbox="392 1193 754 1440" rowspan="2"> <b>30.04.2023</b>   <b>(Sunday)</b>             (Tentative and may be changed in extra ordinary circumstances)         </td> <td data-bbox="754 1193 1034 1317">Paper-I (Mathematics)</td> <td data-bbox="1034 1193 1329 1317"><b>11:00 a.m. to 1.00 p.m.</b></td> </tr> <tr> <td data-bbox="754 1317 1034 1440">Paper-II (Physics &amp; Chemistry)</td> <td data-bbox="1034 1317 1329 1440"><b>2:00 p.m. to 4:00 p.m.</b></td> </tr> </tbody> </table> <p>The test will be held once in a year and there shall be no further examination under any circumstances for those who are unable to appear on the date and time mentioned above.</p>	Date of Examination	Paper/ Subject	Time schedule	<b>30.04.2023</b>  <b>(Sunday)</b>  (Tentative and may be changed in extra ordinary circumstances)	Paper-I (Mathematics)	<b>11:00 a.m. to 1.00 p.m.</b>	Paper-II (Physics & Chemistry)	<b>2:00 p.m. to 4:00 p.m.</b>
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<b>2.2</b>	<p><b>Papers and ranks</b></p> <ul style="list-style-type: none"> <li>• Candidates appearing in both paper-I and paper-II are eligible for both General Merit Rank (GMR) as well as Pharmacy Merit Rank (PMR). Such candidates are considered for admission in all courses.</li> <li>• Candidates appearing only in paper- II are eligible for PMR only. Such candidates are considered for admission into Pharmacy courses only (except in Jadavpur University).</li> <li>• Candidates appearing only in paper-I are not eligible for any rank.</li> </ul>								

2.3	<p><b>Pattern of Question Papers in WBJEE-2023</b></p> <p>All questions will be of <b>Multiple-Choice Questions (MCQ)</b>, with four options against each question. There will be three categories of questions in each subject. The number of questions as well as maximum marks for each are given in the following table:</p> <table border="1" data-bbox="284 398 1439 904"> <thead> <tr> <th data-bbox="284 398 523 698">Subject</th> <th data-bbox="529 398 721 698">Category-1 Each Q carries 1 mark (-ve marks = -1/4)</th> <th data-bbox="727 398 906 698">Category-2 Each Q carries 2 marks (-ve marks = -1/2)</th> <th data-bbox="912 398 1104 698">Category-3 Each Q carries 2 marks (No -ve marks)</th> <th data-bbox="1110 398 1289 698">Total Number of Questions</th> <th data-bbox="1295 398 1439 698">Total Marks</th> </tr> </thead> <tbody> <tr> <td></td> <td>No. of Q</td> <td>No. of Q</td> <td>No. of Q</td> <td></td> <td></td> </tr> <tr> <td><b>Mathematics</b></td> <td><b>50</b></td> <td><b>15</b></td> <td><b>10</b></td> <td><b>75</b></td> <td><b>100</b></td> </tr> <tr> <td><b>Physics</b></td> <td><b>30</b></td> <td><b>5</b></td> <td><b>5</b></td> <td><b>40</b></td> <td><b>50</b></td> </tr> <tr> <td><b>Chemistry</b></td> <td><b>30</b></td> <td><b>5</b></td> <td><b>5</b></td> <td><b>40</b></td> <td><b>50</b></td> </tr> </tbody> </table>	Subject	Category-1 Each Q carries 1 mark (-ve marks = -1/4)	Category-2 Each Q carries 2 marks (-ve marks = -1/2)	Category-3 Each Q carries 2 marks (No -ve marks)	Total Number of Questions	Total Marks		No. of Q	No. of Q	No. of Q			<b>Mathematics</b>	<b>50</b>	<b>15</b>	<b>10</b>	<b>75</b>	<b>100</b>	<b>Physics</b>	<b>30</b>	<b>5</b>	<b>5</b>	<b>40</b>	<b>50</b>	<b>Chemistry</b>	<b>30</b>	<b>5</b>	<b>5</b>	<b>40</b>	<b>50</b>
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2.4	<p><b>Syllabus of Examination:</b> The subject wise Syllabus for the WBJEE-2023 is given in Appendix-7.</p>																														
2.5	<p><b>Mode of answering in the examination</b></p> <ul style="list-style-type: none"> <li>• Questions are to be answered on specially designed optical machine-readable response <b>(OMR)</b> sheet, which will be evaluated by Optical Mark Recognition method. Thus, it is very important to follow the correct method of marking.</li> <li>• Candidates will indicate response to the questions by <b>darkening the appropriate circle/bubble completely with blue/black ink ball point pen.</b></li> <li>• Any other kind of marking e.g., filling the circle/bubble incompletely, filling with pencil, cross mark, tick mark, dot mark, circular mark, over writing, scratching, erasing, white ink, marking outside the circle/bubble etc. may lead to wrong/partial/ambiguous reading of the response. <b>WBJEEB will be, in no way, responsible for such eventuality and this may lead to cancellation of OMR sheet.</b></li> <li>• Response marking cannot be edited/changed/erased/modified.</li> </ul>																														



2.6

**Scoring Methodology**

Category	Scoring methodology
<b>1</b>	a) Only one option is correct. b) Correct response will yield 1 (one) mark for each question. c) Incorrect response will yield -1/4 (25% negative) marks for each question. d) For any combination of more than one option, even if it contains the correct option, the said answer will be treated as incorrect and will yield -1/4 (negative 1/4) marks. e) Not attempting the question will fetch zero mark.
<b>2</b>	a) Only one option is correct. b) Correct response will yield 2 (two) marks for each question. c) Incorrect response will yield -1/2 (25% negative) marks for each question. d) For any combination of more than one option, even if it contains the correct option, the said answer will be treated as incorrect and will yield -1/2 (25% negative) marks. e) Not attempting the question will fetch zero mark.
<b>3</b>	a) One or more options is/are correct. b) Marking all correct options only will yield 2 (two) marks. c) For any combination of answers containing one or more incorrect options, the said answer will be treated as incorrect, and it will yield zero (0) mark even if one or more of the chosen options is/are correct. d) For partially correct answers, i.e., when all correct options are not marked and also no incorrect options are marked, marks awarded = $2 \times (\text{no of correct options marked}) / (\text{total no of actually correct options})$ . e) Not attempting the question will fetch 0 marks

2.7

**Ranking Methodology and Merit Lists**

WBJEEB will prepare merit ranks based on the candidates' **score in the Common Entrance Test**. Individual candidates will be able to view and download his/her Rank Card, which will contain score and rank. **WBJEEB does not publish any rank/score list for public** to ensure confidentiality to each individual candidate.

Based on the papers (subjects) appeared for and the marks scored, two separate Merit Ranks shall be generated in the following method:

**A. General Merit Rank: (GMR)**

- a) A sequence of General Merit Rank (GMR) will be prepared based on the total score obtained in Paper-I and Paper-II taken together.
- b) Ranking shall be done in the descending order of total marks scored in all the subjects. In case of ties, tie-breaking rules as given in 2.8 shall be applicable.
- c) Separate reserved category merit position will also be indicated for respective category of students e.g., SC Rank, ST Rank, OBC-A Rank, OBC-B Rank, PWD Rank, TFW Rank etc., as applicable.
- d) Admission to all Engineering / Technology / Architecture Courses and to the Pharmacy Course in Jadavpur University will be based only on **GMR**.
- e) **Sequencing order for counselling/allotment of seat/admission will be**

	<p><b>based on GMR only</b> (not on category ranks). Category ranks are for information only to candidates of respective category.</p> <p><b>B. Pharmacy Merit Rank: (PMR)</b></p> <p>a) A sequence of Pharmacy Merit Rank (PMR) will be prepared based on the score in paper-II only, i.e., Physics and Chemistry.</p> <p>b) Ranking shall be done in the descending order of marks scored in paper-II. In case of ties, tie-breaking rules as given in 2.8 shall be applicable.</p> <p>c) Separate reserved category merit position will also be indicated for respective category of students e.g., SC Rank, ST Rank, OBC-A Rank, OBC-B Rank, PWD Rank, TFW Rank etc., as applicable.</p> <p>d) Admission to all Pharmacy Courses except in Jadavpur University shall be done based on <b>PMR</b>.</p> <p>e) <b>Sequencing for allotment of seat will be based on PMR only</b> (not on category ranks). Category ranks are only for information to candidates of respective category.</p> <p><b>C. Category ranks</b> are generated based on the category information given by the candidates during online application, but documents are verified by the allotted institute during counselling. Hence candidate's certificates/ documents/ proofs must be valid as on the date of verification. If during verification, any candidate's claim is found invalid at that time, his/her category rank will be cancelled, and the candidate will be considered in general category. <b>Category ranks of other candidates will not be revised.</b></p>
<b>2.8</b>	<b>Tie-breaking Methodology in determination of Merit Rank</b>
<b>2.8.1</b>	<p><b>Tie breaking Rules for GMR</b></p> <p>a) Less negative marks in Mathematics, Physics and Chemistry taken together.</p> <p>b) More positive marks in Mathematics and Physics taken together.</p> <p>c) More positive marks in Mathematics and Chemistry taken together.</p> <p>d) Less negative marks in Mathematics and Physics taken together.</p> <p>e) Less negative marks in Mathematics and Chemistry taken together.</p> <p>f) More positive marks in Mathematics for only the 2 marks questions</p> <p>g) More positive marks in Physics for only the 2 marks questions</p> <p>h) More positive marks in Chemistry for only the 2 marks questions</p> <p>i) Less negative marks in Mathematics for only the 2 marks questions</p> <p>j) Less negative marks in Physics for only the 2 marks questions.</p>
<b>2.8.2</b>	<p><b>Tie breaking Rules for PMR</b></p> <p>a) Less negative marks in Physics &amp; Chemistry</p> <p>b) More positive marks in Chemistry</p> <p>c) Less negative marks in Chemistry</p> <p>d) More positive marks in Chemistry for only the 2 marks question</p> <p>e) Less negative marks in Chemistry for only the 2 marks questions</p> <p>f) More positive marks in Physics for only the 2 marks questions</p> <p>g) Less negative marks in Physics for only the 2 marks questions.</p>
<b>2.8.3</b>	<p><b>Final Tie-breaking rule for GMR and PMR</b></p> <p>After application of the Tie-breaking Rules as applicable if there be still ties, the same will be broken by the date of birth (DOB) of the candidates, with the older candidate having preference over the younger one. If the tie still remains then it will be decided by the</p>

	application number in ascending order.
<b>2.9</b>	<b>Rules of the examination:</b> Rules to be followed during the examination is given in Appendix-8
<b>3.0</b>	<b>Eligibility and academic qualification</b>
<b>3.1</b>	<p><b>Eligibility criteria for appearing in the WBJEE-2023</b></p> <p>a) Citizenship: Applicant must be a citizen of India or OCI (subject to approval of the Competent Authority). OCI candidates will be eligible for only Unreserved seats in All India quota.</p> <p>b) Candidates must have passed 12<sup>th</sup> standard (10+2) or its equivalent examination before 2023 or appearing in 12<sup>th</sup> standard (10+2) or its equivalent examination in 2023.</p> <p>c) Age Restriction:</p> <ol style="list-style-type: none"> <li>I. The lower age limit is 17 (seventeen) years as on 31.12.2023. A candidate should have been born on or before 31.12.2006. There is no upper age limit in appearing in the examination.</li> <li>II. However, for admission to the degree level Marine Engineering Course the upper age limit is 25 Years as on 31.12.2023.</li> </ol>
<b>3.2</b>	<p><b>Academic criteria for admission</b></p> <p>a) The following sections describes the criteria as per latest communications received from the concerned Authorities.</p> <p>b) Candidates must make themselves aware of the latest applicable rules of different Universities, Institutions, Government Departments, Regulatory Bodies at the time of admission. Board will not be responsible by any way, if any candidate fails to aware himself/herself regularly on any updated information.</p> <p>c) The Board would notify revisions, corrections, modifications, addendum, corrigendum if any received from concerned Authorities till the start of counselling.</p>
<b>3.2.1</b>	<p><b>General criteria for admission into Engineering/Technology courses</b></p> <p>These criteria will be applicable unless any special criteria are mentioned under section 3.3.</p> <p>a) Candidate must have passed the Qualifying Examination i.e., the '10+2' examination with Physics and Mathematics along with any one of Chemistry / Biotechnology / Biology / Computer Science / Computer Application/Technical Vocational Subject as compulsory subjects with individual pass marks (in both theory and practical/project wherever applicable) in all the three subjects as stated above in regular class mode.</p> <p>b) Must have obtained at least 45% marks (40% in case of candidates belonging to reserved category i.e., SC, ST, OBC-A, OBC-B, PWD) in the above three subjects taken together.</p> <p>c) Must have passed English in the 12<sup>th</sup> standard (10+2) or its equivalent examination with at least 30% marks.</p> <p>d) The Board of the said Qualifying Examination must be recognized by the Central Government or concerned State Government.</p>
<b>3.2.2</b>	<p><b>General criteria for admission to Pharmacy courses</b></p> <p>These criteria will be applicable unless any special criteria are mentioned under section 3.3.</p> <p>a) Candidate must have passed '10+2' examination with Physics, Chemistry,</p>

	<p>Mathematics / Biology as compulsory subjects with individual pass marks (in both theory and practical/project wherever applicable) in all the three subjects as stated above.</p> <p>b) Must have obtained at least 45% marks (40% in case of candidates belonging to reserved category i.e. SC, ST, OBC-A, OBC-B, PWD) in the above three subjects taken together.</p> <p>c) Must have passed English in the '10+2' examination with at least 30% marks.</p> <p>d) The Board of the said Qualifying Examination must be recognized by the Central Government or State Government concerned.</p>
3.2.3	<p><b>General criteria for admission into five-Year Degree Course in Architecture</b> These criteria will be applicable unless any special criteria are mentioned under section 3.3.</p> <p>a) As per the norms and standards of the Council of Architecture (COA), No candidate shall be admitted to architecture course unless she/he has passed an examination at the end of the 10+2 scheme of examination with 50% marks in Physics, Chemistry and Mathematics taken together with individual pass marks and also 50% marks in aggregate of the 10+2 level examination.</p> <p>b) Candidate must also qualify in the NATA (National Aptitude Test in Architecture) conducted by the Council of Architecture (COA), New Delhi. However, further notification in this regard, if any issued by COA/ NTA also may be applied.</p>
3.2.4	<p><b>General criteria for admission into Marine Engineering</b> These criteria will be applicable unless any special criteria are mentioned under section 3.3.</p> <p>a) As per the norms and standards of the Director General of Shipping, Government of India: Candidates must pass Higher Secondary (10+2) Examination of West Bengal Council of Higher Secondary Education or equivalent examination from a recognized Council/Board in regular class mode with:</p> <p>b) 60% marks in Physics, Chemistry and Mathematics taken together with individual pass marks (both in theory and practical/project wherever applicable) in each of the said subjects.</p> <p>c) Minimum of 50% marks in English as subject in either in '10' standard or in '10+2' standard.</p> <p>N.B.: As per the norms and standards of the Director General of Shipping, Government of India, 25% seats of total intake of an institution must be filled in at the time of admission, otherwise the course could not be continued for that academic session by the institution.</p>
3.2.5	<p><b>General criteria for admission into Mining Engineering</b> These criteria will be applicable unless any special criteria are mentioned under section 3.3.</p> <p>a) Same as section 3.2.1 but candidate must not have colour blindness/unilocularity.</p>
3.2.6	<p><b>Document verification</b></p> <p>a) Admit cards, Rank cards are issued based on the information provided by the candidate. All verifications are done during and after counselling <b>by the allotted Institute</b>. Hence candidates cannot assume that the personal information shown in the admit card, rank card are approved by the Board.</p> <p>b) If during document verification by the <b>allotted Institute</b>, it is found that information given by the candidate is/are incorrect or if the candidate is unable to produce valid certificate/ document/ proof <b>as per the then applicable rules and as on the date of its verification</b>, his/her information will be corrected/modified accordingly which may even make him/her ineligible for some/all seats/course(s).</p>

	<p>c) Similarly, if at any stage during or after counselling it is found on scrutiny that the information/document(s) provided by the candidate is false/incorrect, his/her candidature is liable to be treated as cancelled even if he/she secured a Merit Rank and/or a seat has been allotted to the candidate. Hence, securing a Rank does not constitute a right/guarantee in favour of a candidate for his/her claim for admission if he/she fails to comply with the required criteria.</p>
<b>3.3</b>	<p><b>Special academic criteria</b> for admission into some specific Universities/ University Departments/ Institutions or for admission to some specific courses as per communications received till date from the concerned Authorities are given in this section. For all other institutes and courses not specifically mentioned in this section, the criteria given in section 3.2 above will be applicable.</p>
<b>3.3.1</b>	<p><b>University of Calcutta</b></p> <p>a) <b>All available Courses except Jute &amp; Fiber Technology:</b> Candidate must pass '10+2' or equivalent Examination from a recognised Council/ Board in regular class mode with Mathematics, Physics and Chemistry as compulsory subjects with at least 60% (55% for Reserve Category students i.e. SC, ST, OBC-A, OBC- B, PWD) marks in the above three subjects taken together, individual pass marks (both in theory &amp; practical wherever applicable) in each of the subjects and pass marks in English with a minimum of 30% in the said qualifying examination.</p> <p>b) <b>Jute &amp; Fiber Technology:</b> Candidate must pass '10+2' or equivalent examination from any recognized Council/ Board in regular class mode with Physics, Mathematics and Chemistry/ Biotechnology/ Biology as compulsory subjects with at least 60% (55% for Reserve Category students i.e. SC, ST, OBC-A, OBC-B, PWD) marks in the above three subjects taken together and with at least 30% marks in English.</p>
<b>3.3.2</b>	<p><b>Jadavpur University</b></p> <p>a) <b>Engineering/Technology and Pharmacy courses:</b> Candidates must pass Higher Secondary (10+2) Examination in science stream in regular class mode of West Bengal Council of Higher Secondary Education or equivalent examination from a recognized Council/Board with:</p> <ol style="list-style-type: none"> <li>i. Individual pass mark (both in theory &amp; practical wherever applicable) in Physics, Chemistry and Mathematics as compulsory subjects.</li> <li>ii. Minimum of 60% marks in above subjects taken together (45% for SC, ST, OBC-A, OBC-B, PWD candidates) having 60% marks in Mathematics (45% for SC, ST, OBC-A, OBC-B, PWD candidates) as well as pass marks in English with a minimum mark 30% (for all category of candidates) in the said qualifying examination.</li> </ol> <p>b) <b>Architecture courses:</b> Candidates must pass Higher Secondary (10+2) Examination in science stream in regular class mode of West Bengal Council of Higher Secondary Education or equivalent examination from a recognised Council/Board with:</p> <ol style="list-style-type: none"> <li>i. Minimum of 50% marks in Physics, Chemistry and Mathematics and 50% marks in aggregate of the (10+2) Examination (37% for SC, ST, OBC-A, OBC- B, PWD candidates)</li> <li>ii. Candidates must qualify in NATA (National Aptitude Test in Architecture) conducted by the Council of Architecture (COA), New Delhi. The Results of the above examination should be valid.</li> </ol>

3.3.3	<p><b>West Bengal University of Animal and Fishery Sciences (B. Tech in Dairy Technology) and Bidhan Chandra Krishi Viswa Vidyalaya (B.Tech. in Agricultural Engineering)</b></p> <p>a) The candidate must pass the Higher Secondary (10+2) or its equivalent examinations with Physics, Chemistry, Mathematics and English as compulsory subjects with individual pass marks (in both theory and practical wherever applicable) in all the above four subjects in regular class mode.</p> <p>b) The candidate must obtain at least 50% marks (40% in case of candidates belonging to SC, ST, OBC-A, OBC-B, PWD) in above four subjects taken together.</p>
3.3.4	<p><b>Neotia University</b></p> <p>a) <b>B. Tech course in Marine Engineering:</b> Candidates must pass in (10+2) or equivalent Examination with Physics, Chemistry, Mathematics and English as separate subjects with a PCM average of not less than 60% and with 50% marks in English language at 10<sup>th</sup> or 12<sup>th</sup> standard exam.</p> <p>b) <b>B. Pharma course:</b> Candidates must pass '10+2' or equivalent Examination with Mathematics, Physics and Chemistry/Biology as compulsory subjects with at least 60% marks in all the above three subjects taken together.</p> <p>c) <b>B. Tech courses in other Engineering Branches:</b> Candidates must pass '10+2' or equivalent Examination with Physics and Mathematics along with any one of Chemistry/Biotechnology/Biology/Computer Science/Computer Application subject as compulsory subjects with at least 60% marks in all the above three subjects taken together.</p>
3.3.5	<p><b>Aliah University</b></p> <p>a) Candidate must have taken Mathematics, Physics and Chemistry having at least 100 Marks in total in each subject of the final examination (10+2)</p> <p>b) Candidate has to secure at least 60% overall in Physics, Chemistry and Mathematics taken together in 12<sup>th</sup> level with individual pass marks in all three subjects in regular class mode.</p> <p>c) (10+2) appearing candidates are also eligible in the examination. However, their admission will be cancelled if they fail to secure the above-mentioned criteria later on.</p>
3.3.6	<p><b>Sister Nivedita University</b></p> <p>a) For admission in Computer Science and Business Systems (TCS-Industry Integrated), the candidate must have obtained 60% average in Physics, Chemistry and Mathematics and also at least 60% in aggregate at 12<sup>th</sup> level.</p> <p>b) For B. Arch course:</p> <ol style="list-style-type: none"> <li>i. Candidate must have passed the '10+2' examination with Physics, Mathematics and Chemistry as compulsory subjects with individual passmarks (in both theory and practical wherever applicable) in all the three subjects as stated above in regular class mode.</li> <li>ii. Must have obtained at least 50% marks in the above three subjects <b>taken together</b>.</li> <li>iii. Must have obtained at least 50% marks in aggregate in '10+2' examination.</li> <li>iv. Must have passed English in the '10+2' examination.</li> <li>v. The Board of the said Qualifying Examination must be recognized by the Central Government or State Government concerned.</li> <li>vi. Candidates must qualify in NATA (National Aptitude Test in Architecture)</li> </ol>

	conducted by the Council of Architecture (COA), New Delhi. The Results of the above Examinations should be valid.
3.3.7	<p><b>Adamas University</b></p> <p>a) School of Engineering &amp; Technology: Candidate shall have passed 10+2 examination conducted by the respective state/central, government authorities recognized as equivalent to 10+2 examination by the Association of Indian Universities (AIU) with 60% overall in 10+2 with Physics + Mathematics + Chem/Bio Tech/Biology/Technical Vocational (with 60%).</p> <p>b) School of Medical Sciences (Pharmacy course): The minimum eligibility criteria is 60% in the qualifying examination, the rest being the same as that of PCI.</p>
3.3.8	<p><b>JIS University</b></p> <p>a) B. Tech:</p> <ol style="list-style-type: none"> <li>Candidate must have passed the Qualifying Examination i.e., the '<b>10+2</b>' examination with <b>Physics and Mathematics</b> along with any one of <b>Chemistry / Biotechnology / Biology / Computer Science / Computer Application/Technical Vocational Subject</b> as compulsory subjects with individual pass marks (in both theory and practical wherever applicable) in all the three subjects as stated above in <b>regular class mode</b>.</li> <li>Must have obtained at least 60% marks (55% in case of candidates belonging to reserved category e.g., SC, ST, OBC-A, OBC-B, PWD) in the above three subjects <b>taken together</b>.</li> <li>Must have passed English in the '10+2' examination with at least 30% marks.</li> <li>Candidate must have obtained at least 60% marks (55% in case of candidates belonging to reserved category i.e., SC, ST, OBC-A, OBC-B, PWD) in aggregate in (10+2).</li> </ol> <p>b) B. Pharm:</p> <ol style="list-style-type: none"> <li>Candidate must have passed '10+2' examination with <b>Physics, Chemistry, Mathematics / Biology</b> as compulsory subjects with individual pass marks (in both theory and practical wherever applicable) in all the three subjects as stated above in <b>regular class mode</b>.</li> <li>Must have obtained at least 60% marks (55% in case of candidates belonging to reserved category i.e. SC, ST, OBC-A, OBC-B, PWD) in the above three subjects taken together.</li> <li>Must have passed English in the '10+2' examination with at least 30% marks.</li> <li>Candidate must have obtained at least 60% marks (55% in case of candidates belonging to reserved category i.e. SC, ST, OBC-A, OBC-B, PWD) in aggregate in (10+2).</li> <li>The Board of the said Qualifying Examination must be recognized by the Central Government or State Government concerned.</li> </ol>
3.4	<p><b>Requirements in terms of Residential/Domicile Criteria</b></p> <p>a) The candidate must be a domicile of Home State i.e., West Bengal for admission in,</p> <ol style="list-style-type: none"> <li>Any seat including general category seats in any Government aided Engineering / Technology / Pharmacy Colleges.</li> <li>Any seat including general category seats in B. Tech. (Dairy Technology) in West Bengal University of Animal &amp; Fishery Sciences.</li> <li>90% of General category seats in Jadavpur University.</li> </ol>

	<p>iv. Any reserved category seat (SC, ST, OBC-A, OBC-B, PWD, TFW) in any institute.</p> <p>b) The State (West Bengal) residential/ domicile requirement is applicable for admission to Aliah University as it is a State Govt. University.</p> <p>c) The candidate needs to download the required proforma as per the detail given in section 3.4.1 and keep the certificate ready to be produced during counseling, admission etc.</p>
3.4.1	<p><b>Criteria to be treated as domicile of West Bengal and applicable proforma of certificate</b></p> <p>Only those candidates will be treated as domicile of West Bengal who are either,</p> <p>a) residing in West Bengal continuously at least for last 10 (ten) years as on 31.12.2022.</p> <p style="text-align: center;">OR</p> <p>b) whose parent(s) is/are permanent resident(s) of West Bengal having permanent address within the State of West Bengal.</p> <p>In case of a) above, a certificate is to be obtained as per proforma 'a1' (Appendix - 1) or proforma 'a2' (Appendix - 2).</p> <p>In case of b) above, a certificate is to be obtained in proforma 'b' (Appendix - 3) or the candidate must produce in original any two of Voter ID card/ Aadhaar card/ Passport/ Ration card belonging to his/her parents. The said documents must justify that the residential address of parent(s) is in West Bengal.</p> <p>During counselling etc. if SC/ST/OBC-A/OBC-B candidates who are domiciled in West Bengal and cannot produce required domicile certificate, they can produce/upload their category certificates (issued by the Govt. of WB) in lieu of domicile certificate. But in that case if the category certificate is found invalid at the time of verification, their domicile status is also considered to be NON-West Bengal.</p>
3.4.2	<p><b>Competent authority to issue domicile certificate</b></p> <p>a) <b>Proforma 'a1' or 'b'</b> must be signed and certified by any of the following competent authorities from Central Government or State Government <i>having local jurisdiction over the place of the permanent residence of the concerned candidate or his/her parent(s)</i> viz.</p> <ol style="list-style-type: none"> <li>i. District Magistrate, Additional District Magistrate, Deputy Magistrate, Deputy Collector, Sub - Divisional Officer, Block Development Officer.</li> <li>ii. Superintendent of Police, Additional Superintendent of Police, Sub Divisional Police Officer, Deputy Superintendent of Police,</li> <li>iii. Commissioner, Additional Commissioner, Joint Commissioner, Deputy Commissioner, Assistant Commissioner of Police Commissionerate.</li> <li>iv. Judicial Magistrate of any rank or position in the concerned district or Metropolitan locality or Hon'ble High Court at Calcutta or Hon'ble Supreme Court of India.</li> <li>v. Corporation Area - Commissioner, Additional Commissioner, Joint Commissioner, Assistant Commissioner.</li> <li>vi. Assistant Secretary or above in the Secretariat to the Government of West Bengal (including GTA) or Central Government.</li> <li>vii. Deputy Director or above in the Directorate to the Government of West Bengal or Central Government.</li> <li>viii. Officials issuing domicile certificates MUST provide his/her full name, designation, place of posting with address, land line/mobile number. He/she</li> </ol>



	<p>should also provide his/her identity card number if available.</p> <p><b>b) Note: Domicile certificates issued by any elected people's representative such as municipal commissioner, Councillor of Municipal Corporation/ Municipality, Member of three-tier Panchayat system or GTA, MLA or MP are not acceptable.</b></p> <p><b>c) Proforma 'a2'</b> must be signed and certified by the Head of the Institution from which the candidate has passed or will appear in 10+2 examination. Such certificate must be issued after verification of the school education record of the candidate.</p>
<b>4.0</b>	<p><b>Seat matrix.</b></p> <p>The seat matrix for last year i.e., for the academic session 2022-23 is given in the Board's website.</p> <p>Seat matrix for the academic session 2023-24 will be declared by the office of The Director of Technical Education, Govt. of W.B. in due course of time and will be published at Board's web site before counselling.</p> <p>Note that there may be other seats available in some institute/course which are not offered by them through e-counselling and hence will not appear in the seat matrix.</p>
<b>5.0</b>	<b>Reservation of seats for students under Reserved Category</b>
<b>5.1</b>	<p><b>Reservation of Seats for SC/ST/OBC-A/OBC-B/PWD/TFW</b></p> <p>a) Reservation of Seats will be available for SC/ST/OBC-A/OBC-B/PWD/TFW category of candidates as per applicable rule depending upon the type of institute. The OBC-A/OBC-B candidates belonging to Non Creamy Layer (NCL) only are eligible for consideration as reserved candidates. OBC-A/OBC-B candidates must produce <b>updated NCL certificate</b> during Counselling/ Admission.</p> <p>b) Such reservation shall be restricted to candidates who are Indian citizen and domiciled in West Bengal. OCI candidates will be eligible for only Unreserved seats in All India quota.</p> <p>c) Candidates claiming reservation must submit relevant Certificate issued by the competent Authorities as given below.</p> <p>d) Certificates are to be produced for verification by the <b>allotted Institute</b> during counselling, admission etc. If at that time, it is found that any information given by the candidate is/are not correct or if the candidate is unable to produce certificate/ document/ proof <b>valid as per the then applicable rules as on the date of its verification</b>, his/her information will be corrected/modified accordingly which may even make him/her ineligible for some/all seats/course(s) and the candidate may be reconsidered in next round of counselling (if any).</p>
<b>5.2</b>	<p><b>Competent Authorities for the issuance of SC/ST Certificate for WB domicile candidates claiming under such reserve category of seats</b></p> <p>SC/ST Certificates are to be issued by any of the following authorities:</p> <p>(i) Sub-Divisional Officers for all districts except Kolkata</p> <p>(ii) District Welfare Officer, Kolkata &amp; Ex-Officio Joint Director, B.C.W. Dept. in case of Kolkata Municipal Area [as defined in clause (9) of Section 2 of K.M.C Act, 1980]</p>
<b>5.3</b>	<p><b>Competent Authorities for the issuance of OBC-A (NCL*) / OBC-B (NCL*) Certificate for WB domicile candidates claiming under such reserve category of seats</b></p> <p>As per Notification vide No. 374(71)-TW/EC/MR-103/94 dated 27/7/1994, read with Memorandum No. 1204-SBCW/MR-67/10 dated 27/7/2015 issued by Backward Classes Welfare Department. Govt. of W.B., the Sub Divisional Officer of a Sub- Division in a District is the certificate issuing authority. In Kolkata such certificate is issued by such an</p>

	<p>officer as the State Government by modification authorizes. Accordingly, the District Welfare Officer, Kolkata, and Ex-officio Joint Director, BCW Dept. has been notified to act as the certificate issuing authority in respect of Kolkata covering the jurisdiction of the Kolkata Municipal Corporation.</p> <p><b>*NCL-</b> Non Creamy Layer</p>
<p><b>5.4</b></p>	<p><b>Reservation of seats for PWD candidates</b></p> <p>a) According to Section 2(r) of the RPWD Act, 2016, “<b>persons with benchmark disabilities</b>” means a <b>person with not less than forty percent (40%) of a specified disability</b> where specified disability has not been defined in measurable terms and includes a person with disability where specified disability has been defined in measurable terms, as certified by the certifying authority.</p> <p>b) Accordingly, reservation in PWD seats will be available for the following types of disabilities, percentage of disability being not less than 40%.</p> <ol style="list-style-type: none"> <li>i. Locomotor disability as specified in the Schedule of RPWD Act, 2016.</li> <li>ii. Visual impairment as specified in the Schedule of RPWD Act, 2016.</li> <li>iii. Hearing impairment as specified in the Schedule of RPWD Act, 2016.</li> <li>iv. Speech &amp; language disability as specified in the Schedule of RPWD Act, 2016</li> <li>v. Intellectual disabilities as specified in the Schedule of RPWD Act, 2016</li> <li>vi. Mental illness.</li> <li>vii. Disabilities caused due to chronic neurological conditions and blood disorder.</li> <li>viii. Multiple disabilities including deaf blindness.</li> </ol> <p>c) The “specified disabilities”, which are included in the Schedule of the RPWD Act, are given in APPENDIX-10.</p> <p>d) PWD certificates are to be issued by any of the authorities as given in the Order No. 289-HF/O/PHP/IR-05/2017 dated 29.08.2018 by the Government of West Bengal, Health &amp; Family Welfare Department (PHP Branch)</p>
<p><b>5.5</b></p>	<p><b>Special facilities to PWD candidates for appearing in the examination</b></p> <p>a) <b>Concessional application fees:</b> PWD candidates are eligible for 40% concession on application fees. To avail the same, the candidate must formally apply in writing (enclosing a copy of his/her confirmation page and PWD certificate) to the Chairman, WBJEEB and send/submit the application to the Board office within the last date of online application.</p> <p>b) <b>Compensatory time:</b> Twenty minutes per hour compensatory time as per duration of examination (On pro-rata basis) will be allowed to the PWD candidates with benchmark disabilities.</p> <p>c) <b>Scribe/reader:</b> Facility of own Scribe/Reader will be allowed to a candidate with benchmark disability and has limitation in writing including that of speed if so desired by him/her. (See Appendix – 5 and Appendix – 6)</p> <p>d) In order to avail the facility of compensatory time and/or scribe/reader, the candidate must formally apply in writing (enclosing a copy of his/her confirmation page, PWD certificate, a certificate in the format as given in appendix-5 and a letter of undertaking in the format as given in appendix-6) to the Chairman, WBJEEB and send/submit the application to the Board office within the last date of online application. <b>Special arrangement will be made in the office of the Board in Kolkata for such candidates to sit for the examination. Such facilities are not available in other examination centers.</b></p> <p>e) The Board’s decision in this regard will be final and binding on the candidate.</p>

5.6	<p><b>Reservation of Seats for admission of the wards of Defense Personnel (Defense Quota Seats)</b></p> <p>As per the Govt. Order vide No. 406(T), Dated, 09.06.2016 of the Higher Education Department, Govt. of West Bengal 13(thirteen) seats are available for admission of the wards of Defense Personnel through WBJEE-2023.</p> <p>These seats are supernumerary in nature and separate allotment is done by the West Bengal Joint Entrance Examinations Board as per the following guidelines:</p> <ol style="list-style-type: none"> <li>a) For consideration under Defense Quota, intending candidates will have to apply to the Rajya Sainik Board, Home Department, Government of West Bengal, Writers' Buildings, Kolkata – 700001 through the concerned Zila Sainik Board, W.B. (for ex-servicemen) and Units (for serving soldiers) in the prescribed form with an attested copy of WBJEE –2023 Admit Card.</li> <li>b) Based on the recommendation of the said Rajya Sainik Board, a separate list shall be published by the WBJEEB for subsequent <b>offline</b> counselling and allotment of seats inter-se merit basis. Securing a General Merit Rank (GMR) in WBJEE-2023 is mandatory for such category of seat.</li> <li>c) Institution-wise and course-wise seats under Defense Quota for academic session 2022-23 is given in appendix-11. The list for academic session 2023-24 shall be published before counselling.</li> </ol>
5.7	<p><b>Seats for admission through JEE (Main) 2023</b></p> <p>Seats are available for student's merit listed in <b>JEE (Main)- 2023, Paper-1</b> up to the extent of 10% of the approved seats in all <b>Self-Financed Engineering &amp; Technology Colleges</b> of West Bengal.</p> <p>The eligibility and other criteria described in section 3 for admission to degree level Engineering / Technology /Pharmacy / Architecture courses, will be applicable for JEE (Main) 2023 paper-1 merit listed candidates also.</p>
6.0	<p><b>Tuition Fee Waiver (TFW) Scheme</b></p>
6.1	<p><b>Availability of seats under the Tuition Fee Waiver (TFW) Scheme</b></p> <ol style="list-style-type: none"> <li>a) The Tuition Fee Waiver Scheme (TFW) has been implemented by the Government of West Bengal for meritorious and economically backward students.</li> <li>b) The student must be domiciled in West Bengal and his/her total annual Family Income from all sources must be less than <b>Rs. 2.50 lakhs</b> (Rupees two lakhs and fifty thousand only).</li> <li>c) The waiver is limited to the Tuition Fee only. All other fees will have to be paid by the student.</li> </ol>
6.2	<p><b>Submission of Income Certificate in availing seat under the TFW Scheme</b></p> <ol style="list-style-type: none"> <li>a) Candidates must produce the <b>Income Certificate</b> as per the proforma provided in <b>Appendix-4</b> of this Information Bulletin.</li> <li>b) Candidates claiming such seats must submit relevant Certificate issued by the competent authorities as enlisted below. <ol style="list-style-type: none"> <li>i. An officer in the rank of Assistant Secretary or above in State or Central Govt.</li> <li>ii. District Magistrate</li> <li>iii. Additional District Magistrate</li> <li>iv. Sub-Divisional Officer</li> </ol> </li> </ol>

	<p>v. Block Development Officer</p> <p><b>Note: Income certificate issued by any elected people's representative such as Municipal Commissioner, Councillor of Municipal Corporation/Municipality, Member of three-tier Panchayat system or GTA, MLA or MP are not acceptable.</b></p>
7.0	<p><b>Legal jurisdiction</b></p> <p>a) All matters pertaining to conduct of the examination and counselling shall fall within the jurisdiction of Kolkata only.</p> <p>b) The Board will not be a party pertaining to any dispute arising in the process of admission</p> <p>c) WBJEEB is obliged to share with any candidate any information about his/ her own status in common entrance test and counselling, for which any candidate can contact WBJEEB individually and personally. But WBJEEB is unable to share any information about any other candidate.</p>
8.0	<p><b>Procedure for submission of application form, payment of examination fees</b></p>
8.1	<p><b>Registration</b></p> <p>a) The candidate will enter personal details such as, name, father's name, mother's name, date of birth, gender, identification type and number, present and permanent address, mobile number, email ID etc.</p> <p>b) <b>Candidates must be careful while entering name, father's name, mother's name, date of birth, gender and domicile. These information cannot be changed/edited/modified under any circumstances.</b></p> <p>c) Then the candidate has to create password, choose security question/ answer, review and submit the registration.</p> <p>d) An application number will be generated and will appear on the screen. Also, SMS/email will be sent to the registered Mobile No./ Mail-id of the candidate(s).</p> <p>e) Candidate must remember his/her application number, password, and security question/answer. If the candidate forgets the password, he/she has to recover it through "Forgot Password" option. <b>There is no other way to recover the password.</b></p> <p>f) It is not possible for any person/agency to change/edit/input any information without knowing the password. Hence candidates must not share their password with anybody. <b>The Board will not be responsible for any change resulting from sharing/ divulging of the password.</b></p>
8.2	<p><b>Application</b></p> <p>a) At this stage, the candidate needs to fill up various other information such as, domicile, category, PWD status, family income status, religion, nationality, academic details etc.</p> <p>b) If the candidate has also applied for JEE(Main) 2023, he/she needs to enter application number of JEE (Main)-2023.</p> <p>c) Thereafter the candidate needs to choose zones of examinations in order of his/her choice and submit the application.</p>
8.3	<p><b>Uploading of images</b></p> <p>a) The candidate is required to upload JPG/JPEG images of his/her recent color photograph (10 to 200 KB) and signature (4 to 30 KB).</p> <p>b) If any document e.g., certificate/marksheet etc. is to be uploaded, it must be inPDF</p>

	<p>format (50 to 300 KB)</p> <p>c) Photo and Signature of candidate are to be uploaded in one go.</p>
<b>8.4</b>	<p><b>Payment of Examination Fees</b></p> <p>a) The Examination Fees can be paid by Net Banking/ Debit Card/ Credit Card/ UPI only.</p> <p>b) Application fee for the examination is <b>Rs 500 (Rupees five hundred only) for General candidates and Rs 400 (Rupees four hundred only) for SC/ST/OBC-A/OBC-B candidates, plus the Bank's service charges</b> as applicable.</p> <p>c) SC/ST/OBC-A/OBC-B/TFW candidates availing of the concession will have to upload respective certificates in given formats at the time of counselling, failing which his/her candidature will be cancelled.</p> <p>d) <b>The fee once paid is not refundable under any circumstances.</b></p>
<b>8.5</b>	<p><b>Confirmation Page</b></p> <p>a) On successful completion of all the above steps, candidate shall be directed to download the 'Confirmation Page' which means that the application is <b>complete</b>. APPLICATION IS <b>NOT COMPLETE</b> UNTIL THE CONFIRMATION PAGE IS GENERATED.</p>
<b>8.6</b>	<p><b>Correction of application form</b></p> <p>a) It is not possible to correct any primary registration data i.e., <b>Name, Father's Name, Mother's name, gender, domicile, and Date of birth.</b></p> <p>b) If any candidate intends to correct any other information in his/her application, he/she can do so after logging in during the given <b>correction period</b>. <b>The Board will not entertain any request for any correction under any circumstances beyond the correction period. Also, the Board will not make any correction on behalf of any candidate.</b></p>
<b>9.0</b>	<p><b>Admit Card</b></p> <p>a) Admit cards will be generated on the notified date for the student to download and take a print. Candidate must carry a printed hard copy of the admit card to the examination center.</p> <p>b) Candidates must ensure that the admit card is not mutilated/ distorted/ soiled even by accident. Candidates with such mutilated/ distorted/ soiled admit cards will not be allowed to appear in the examination.</p>
<b>10.0</b>	<p><b>Allocation of examination centre.</b></p> <p>a) Allocation of examination centre will be based on the choices of zones given by the candidate. However, under unavoidable circumstances, any candidates may be allocated in a zone out of his/her choice. <b>Discretion of the Board in allocation of examination zone/centre shall be final.</b> No request for change of allocated centre will be entertained under any circumstances. List of district- wise examination zones is given in <b>Appendix-9</b>.</p> <p><b>b) Any examination zone may be dropped if adequate numbers of candidates are not available or under any unavoidable circumstance. In such case the candidate will be allocated alternative examination zone.</b></p>
<b>11.0</b>	<p><b>Evaluation and declaration of result</b></p> <p>a) <b>Model Answer Keys</b> will be available for a brief period at Board's website shortly after the examination. Candidates can log in and view the model answer keys.</p> <p>b) Candidates can also challenge any answer key on payment of <b>₹500 (Rupees Five</b></p>

	<p><b>hundred only) per question</b> plus the bank's service charges, if any.</p> <p>c) The Board will review the challenges and publish Final and Frozen Answer Keys. <b>The Board's decision in this regard will be final and no further communication will be entertained.</b></p> <p>d) Images of OMRs and machine read responses will be available for a brief period in Board's web site one week (tentatively) after the examination. Any candidate can view the images of his/her OMRs and machine read responses by logging in with his/her password. Candidates should download and preserve copies of their OMRs. However, the duration of preservation of record (s)/ document (s)/ information has been notified and available in the Board's website.</p> <p>e) Any candidate, who is not satisfied with the captured responses may challenge online on payment of <b>₹500 (Rupees Five hundred only) per question</b> plus bank's service charges, if any.</p> <p>f) The Board will review the challenges and take final decision. <b>The Board's decision on the challenges will be final and no further communication will be entertained.</b></p> <p>g) Challenges by email, letter, fax, telephone etc. other than through online mode will not be accepted or entertained.</p> <p>h) Result will be published in the form of Rank Card, which will contain all relevant ranks, total score, and component scores in paper-I (Mathematics) and paper-II (Physics &amp; Chemistry). Candidates can view and download their rank card by logging in with their password. <b>The Board never publishes a rank list to ensure confidentiality to each individual candidate.</b></p> <p>i) Ranks cards with scores will be issued to all candidates, who appears in WBJEE-2023. But all <b>may not be awarded a rank and hence may not be eligible for counseling</b>, for which a cut off rank and/or a cut off score will be decided by the Board.</p> <p>j) If any candidate has any grievance about his/her score, he/she may raise a query through email (to <a href="mailto:info@wbjeeb.in">info@wbjeeb.in</a>) within 24 hours of declaration of the result attaching copies of OMRs, rank card, question booklet number and its series code, question wise calculation of score. If the candidate wishes to make a physical representation, it is allowed till 12:00 noon on the next working day of result publication. The Board will not entertain any query/grievance thereafter.</p> <p>k) A candidate can calculate his/her score from his/her machine read response and published final answer keys. However, if any candidate needs a calculation sheet from the Board, he/she will have to apply to the Board with a demand draft of Rs. 500/- in favor of 'West Bengal Joint Entrance Examinations Board' payable at Kolkata. But this facility will be available only till 60 days after the declaration of result or till the counselling is over, whichever is later.</p>
12.0	<p><b>General rules about documents.</b></p> <p>a) Whenever and wherever a candidate produces documents like confirmation page, admit card, rank card, caste/ category/ domicile/ income certificate etc., he/she must produce it in original. Documents generated by the portal must be printed by using the 'PRINT' link provided for the purpose. <b>Screen shots, photographs of the screen, images captured/stored by/in mobile phone etc. are not acceptable as any valid document.</b></p> <p>b) Confirmation page, admit card, rank card etc. contains some personal information as given by the candidate during online application. As such, the Board is in no way responsible for any mistake in it due to incorrect entry given by the candidate.</p> <p>c) All verifications are done during by the allotted institute during counselling/Admission. Hence candidates cannot assume that the personal</p>

	<p>information shown in the confirmation page, admit card, rank card etc., are accepted or approved by the Board.</p> <p>d) In case the candidate faces any problem during admission in any institute or thereafter due to any mistake committed by him/her in providing such personal information during online application, <b>the Board is not able to render any help e.g., issuing any letter of correction etc.</b> The candidate must take necessary actions at his/her end with the institute, where he/she takes admission.</p> <p>e) Confirmation page and admit card cannot be downloaded after the examination is over. Rank card and OMR images cannot be downloaded after the counselling is over. <b>Candidates must preserve such documents safely.</b></p> <p>f) However, if any candidate needs a duplicate copy of any document, it can be provided by the Board, but only till the end of counselling or 60 days after the date of declaration of result, whichever is later. To get a duplicate copy, the candidate must apply to the Board and pay a processing fee of Rs. 500/- for each document by a bank draft in the name of "West Bengal Joint Entrance Examinations Board" payable in Kolkata.</p>
<b>13.0</b>	<b>Counselling/seat allotment and admission</b> <p>a) A separate notification with details of counseling and admission will be published in Board's web site shortly after publication of result.</p> <p>b) Course-wise and institute wise availability of seats which will be provided by the Competent Authorities will also be published before counseling and allotment.</p>

**PROFORMA a1****Residential/Domicile Certificate for candidates residing in the State of West Bengal continuously for at least last ten (10) years as on 31.12.2022**

Certified that \_\_\_\_\_

Son / daughter of \_\_\_\_\_ is a  
resident/permanent resident of West Bengal at Village/House No. \_\_\_\_\_

Street \_\_\_\_\_

Post Office \_\_\_\_\_ Police Station \_\_\_\_\_

In the District of \_\_\_\_\_ under \_\_\_\_\_

Assembly Constituency and has been living in the State of West Bengal continuously/ uninterruptedly at least for the last ten (10) years as on 31-12-2022.

Paste 4 cmx3 cm  
size recent  
colour  
photograph in  
this box. Photo  
must be attested  
by the certifying  
authority

Candidate's signature

**Candidate must sign here in front of the  
certifying authority**

**(Candidate's photograph)**

Signature of Certifying Authority \_\_\_\_\_

Full Name of Certifying Authority (Block letters) \_\_\_\_\_

Designation with Official Seal \_\_\_\_\_

Office Address \_\_\_\_\_

Office Phone No. \_\_\_\_\_ Mobile No: \_\_\_\_\_ (optional)

ID No: \_\_\_\_\_ (optional)

*Note: Photograph is to be attested by the certifying authority.**The Certifying Authority may preserve a duplicate copy of this Certificate as record.*



**PROFORMA a2****Residential/Domicile Certificate for candidates residing in the State of West Bengal continuously for at least last ten (10) years as on 31.12.2022**

Certified that \_\_\_\_\_ son / daughter of \_\_\_\_\_ has passed the '10+2' Examination in theyear \_\_\_\_/ will appear in the Final '10+2' Examination in 2023 from this Institution.

It is also certified that the student is a resident/permanent resident of West Bengal at Village/House No. \_\_\_\_\_

Street \_\_\_\_\_ Post Office \_\_\_\_\_

Police Station \_\_\_\_\_ in the district of \_\_\_\_\_

under \_\_\_\_\_ Assembly Constituency and has been living and studying in the State of West Bengal continuously / uninterruptedly at least for the last ten (10) years as on 31-12-2022.

Paste 4 cmx3 cm size recent colour photograph in this box. Photo must be attested by the certifying authority

Candidate's signature

**Candidate must sign here in front of the certifying authority**

**(Candidate's photograph)**

Signature of Certifying Authority \_\_\_\_\_

Full Name of Certifying Authority (Block Letter) \_\_\_\_\_

Designation with Official Seal \_\_\_\_\_

Office Address \_\_\_\_\_

Office Phone No. \_\_\_\_\_ Mobile No: \_\_\_\_\_ (optional)

ID No: \_\_\_\_\_ (optional)

*Note: Photograph is to be attested by the certifying authority.*

*The Certifying Authority may preserve a duplicate copy of this Certificate as record.*

## APPENDIX -3

**PROFORMA b**

**Residential/Domicile Certificate for candidates not residing in the State of West Bengal but whose parent(s) is (are) permanent resident(s) of West Bengal having their permanent home address within West Bengal**

Certified that \_\_\_\_\_

Father/ mother of \_\_\_\_\_ (the applicant) is/ are permanent Resident of West Bengal at Village/House No. \_\_\_\_\_

Street \_\_\_\_\_

Post Office \_\_\_\_\_ Police Station \_\_\_\_\_

In the District of \_\_\_\_\_

Under \_\_\_\_\_ Assembly Constituency

Paste 4 cmx3 cm size recent colour photograph of the candidate in this box. Photo must be attested by the certifying authority

Paste 4 cmx3 cm size recent colour photograph of father/ mother of the candidate in this box. Photo must be attested by the certifying authority

Father's/ Mother's Signature

Candidate's Signature

**Candidate must sign here in front of the certifying authority**

**(Candidate's Photograph) (Father's/ Mother's Photograph)**

Signature of Certifying Authority \_\_\_\_\_

Full Name of Certifying Authority (Block Letter) \_\_\_\_\_

Designation with Official Seal \_\_\_\_\_

Office Address \_\_\_\_\_

Office Phone No. \_\_\_\_\_ Mobile No: \_\_\_\_\_ (optional)

ID No: \_\_\_\_\_ (optional)

*Note: Photographs are to be attested by the certifying authority.*

*The Certifying Authority may preserve a duplicate copy of this Certificate as record.*

## APPENDIX - 4

## Proforma for Income Certificate

Certified that the TOTAL ANNUAL FAMILY INCOME FROM ALL SOURCES of  
 \_\_\_\_\_ GUARDIA \_\_\_\_\_, guardian \_\_\_\_\_ CANDIDAT \_\_\_\_\_  
 residing at \_\_\_\_\_ Post Office \_\_\_\_\_  
 Police Station \_\_\_\_\_ in the district of \_\_\_\_\_  
 in the state of West Bengal for the financial year 2022-2023 is less than Rs. 2.50 lakhs  
 (Rupees two lakhs and fifty thousand only) and stands at Rs. \_\_\_\_\_ (Rupees  
 \_\_\_\_\_).

Paste 4 cmx3 cm  
size recent colour  
photograph of the  
candidate in this  
box. Photo must  
be attested by the  
certifying  
authority

Candidate's signature

**Candidate must sign here in front of the certifying**

**(Candidate's Photograph)**

Signature of Certifying Authority \_\_\_\_\_

Full Name of Certifying Authority (Block Letter) \_\_\_\_\_

Designation with Official Seal \_\_\_\_\_

Office Address \_\_\_\_\_

Office Phone No. \_\_\_\_\_ Mobile No: \_\_\_\_\_ (optional)

ID No: \_\_\_\_\_ (optional)

*Note: Photographs are to be attested by the certifying authority.  
 The Certifying Authority may preserve a duplicate copy of this Certificate as record.*

**APPENDIX-5****Certificate regarding physical limitation in a examinee to write**

This is to certify that, I have examined Mr/Ms/Mrs\_\_\_\_\_ (name of the candidate with disability), a person with\_\_\_\_\_ (nature and percentage of disability as mentioned in the certificate of disability), S/o/ D/o \_\_\_\_\_, a resident of \_\_\_\_\_ (Village/District/State) and to state that he/she has physical limitation which hampers his/her writing capabilities owing to his/her disability.

Signature

Chief Medical Officer/Medical Superintendent of a Government health care institution

Name & Designation:

Name of Government Hospital/Health Care Centre with Seal:

Place:

Date:

**Note:**

Certificate should be given by a specialist of the relevant stream/disability (e.g., Visual impairment - Ophthalmologist, Locomotor disability- Orthopaedic specialist/ PMR)

## APPENDIX-6

**Letter of Undertaking for Using Own Scribe**

I \_\_\_\_\_, a candidate with \_\_\_\_\_ (name of the disability) appearing for the \_\_\_\_\_ (name of the examination) bearing Roll No. \_\_\_\_\_ at \_\_\_\_\_ (name of the centre) in the District \_\_\_\_\_, \_\_\_\_\_ (name of the State). My qualification is \_\_\_\_\_.

I do hereby state that \_\_\_\_\_ (name of the scribe) will provide the service of scribe/reader/lab assistant for the undersigned for taking the aforesaid examination.

I do hereby undertake that his qualification is \_\_\_\_\_. In case, subsequently it is found that his qualification is not as declared by the undersigned and is beyond my qualification, I shall forfeit my right to the admission and claims relating thereto.

(Signature of the candidate with Disability)

Place:

Date:

## Syllabus for WBJEE-2023

## APPENDIX - 7

## MATHEMATICS

## Algebra

A.P., G.P., H.P.: Definitions of A. P. and G.P.; General term; Summation of first n-terms of series  $\sum n$ ,  $\sum n^2$ ,  $\sum n^3$ ; Arithmetic/Geometric series, A.M., G.M. and their relation; Infinite G.P. series and its sum.

Logarithms: Definition; General properties; Change of base.

Complex Numbers: Definition in terms of ordered pair of real numbers and properties of complex numbers; Complex conjugate; Triangle inequality; amplitude of complex numbers and its properties; Square root of complex numbers; Cube roots of unity; De Moivre's theorem (statement only) and its elementary applications. Solution of quadratic equation in complex number system.

Polynomial equation: nth degree equation has exactly n roots (statement only); Quadratic Equations: Quadratic equations with real coefficients; Relations between roots and coefficients; Nature of roots; Formation of a quadratic equation, sign and magnitude of the quadratic expression  $ax^2 + bx + c$  (where a, b, c arerational numbers and  $a \neq 0$ ).

Permutation and combination: Permutation of n different things taken r at a time ( $r \leq n$ ). Permutation of n things not all different. Permutation with repetitions (circular permutation excluded). Combinations of n different things taken r at a time ( $r \leq n$ ). Combination of n things not all different. Basic properties. Problems involving both permutations and combinations.

Principle of mathematical induction: Statement of the principle, proof by induction for the sum of squares, sum of cubes of first n natural numbers, divisibility properties like  $2^{2n} - 1$  is divisible by 3 ( $n \geq 1$ ), 7 divides  $3^{2n+1} + 2^{n+2}$  ( $n \geq 1$ )

Binomial theorem (positive integral index): Statement of the theorem, general term, middle term, equidistant terms, properties of binomial coefficients.

Matrices: Concepts of  $m \times n$  ( $m \leq 3, n \leq 3$ ) real matrices, operations of addition, scalar multiplication and multiplication of matrices. Transpose of a matrix. Determinant of a square matrix. Properties of determinants (statement only). Minor, cofactor and adjoint of a matrix. Non-singular matrix. Inverse of a matrix. Finding area of a triangle. Solutions of system of linear equations. (Not more than 3 variables).

Sets, Relations and Mappings: Idea of sets, subsets, power set, complement, union, intersection and difference of sets, Venn diagram, De Morgan's Laws, Inclusion / Exclusion formula for two or three finite sets, Cartesian product of sets.

Relation and its properties. Equivalence relation — definition and elementary examples, mappings, range and domain, injective, surjective and bijective mappings, composition of mappings, inverse of a mapping.

Statistics and Probability:

Measure of dispersion, mean, variance and standard deviation, frequency distribution. Addition and multiplication rules of probability, conditional probability and Bayes' Theorem, independence of events, repeated independent trails and Binomial distribution.

**Trigonometry**

Trigonometric functions, addition and subtraction formulae, formulae involving multiple and submultiple angles, general solution of trigonometric equations. Properties of triangles, inverse trigonometric functions and their properties.

**Coordinate geometry of two dimensions**

Distance formula, section formula, area of a triangle, condition of collinearity of three points in a plane. Polar co-ordinates, transformation from Cartesian to polar coordinates and vice versa. Parallel transformation of axes.

Concept of locus, locus problems involving all geometrical configurations,

Slope of a line. Equation of lines in different forms, angle between two lines. Condition of perpendicularity and parallelism of two lines. Distance of a point from a line. Distance between two parallel lines. Lines through the point of intersection of two lines. Angle bisector

Equation of a circle with a given center and radius. Condition that a general equation of second degree in  $x$ ,  $y$  may represent a circle. Equation of a circle in terms of endpoints of a diameter. Equation of tangent, normal and chord. Parametric equation of a circle. Intersection of a line with a circle. Equation of common chord of two intersecting circles.

Definition of conic section, Directrix, Focus and Eccentricity, classification based on eccentricity. Equation of Parabola, Ellipse and Hyperbola in standard form, their foci, directrices, eccentricities and parametric equations.

### **Co-ordinate geometry of three dimensions**

Direction cosines and direction ratios, distance between two points and section formula, equation of a straight line, equation of a plane, distance of a point from a plane.

### **Calculus**

Differential calculus: Functions, domain and range set of functions, composition of two functions and inverse of a function, limit, continuity, derivative, chain rule and derivative of functions in various forms. Concept of differential.

Rolle's Theorem and Lagrange's Mean Value theorem (statement only). Their geometric interpretation and elementary application. L'Hospital's rule (statement only) and applications. Second order derivative.

Integral calculus: Integration as a reverse process of differentiation, indefinite integral of standard functions. Integration by parts. Integration by substitution and partial fraction.

Definite integral as a limit of a sum with equal subdivisions. Fundamental theorem of integral calculus and its applications. Properties of definite integrals.

Differential Equations: Formation of ordinary differential equations, solution of homogeneous differential equations, separation of variables method, linear first order differential equations.

Application of Calculus: Tangents and normals, conditions of tangency. Determination of monotonicity, maxima and minima. Differential coefficient as a measure of rate. Motion in a straight line with constant acceleration. Geometric interpretation of definite integral as area, calculation of area bounded by elementary curves and Straight lines. Area of the region included between two elementary curves.

Vectors: Addition of vectors, scalar multiplication, dot and cross products, scalar triple product.

## **PHYSICS**

**Physical World, Measurements, Units & dimensions:** Physical World, Measurements, Units & dimensions Units & Dimensions of physical quantities, dimensional analysis & its applications, error in measurements, significant figures.

**Kinematics:** Scalars & vectors, representation of vectors in 3D, dot & cross product & their applications, elementary differential & integral calculus, time-velocity & relevant graphs, equations of motion with uniform acceleration.

**Laws of motion:** Newton's laws of motion, using algebra & calculus, inertial & non inertial frames, conservation of linear momentum with applications, elastic & inelastic collisions, impulse centripetal force, banking of roads, relative velocity, projectile motion & uniform circular motion Work, power, energy: Work, power, energy Work, work-energy theorem, power, energy, work done by constant & variable forces, PE & KE, conservation of mechanical energy, conservative and nonconservative forces, PE of a spring,

Motion of centre of mass, connected systems, Friction: Centre of mass of two-particle system, motion of connected system, torque, equilibrium of rigid bodies, moments of inertia of simple geometric bodies (2D) [without derivation] conservation of angular momentum, friction and laws of friction.

Gravitation: Kepler's laws, (only statement) universal law of gravitation, acceleration due to gravity ( $g$ ), variation of  $g$ , gravitational potential & PE, escape velocity, orbital velocity of satellites, geostationary orbits.

Bulk properties of matter: Elasticity, Hooke's law, Young's modulus, bulk modulus, shear, rigidity modulus, Poisson's ratio elastic potential energy. Fluid pressure: Pressure due to a fluid column, buoyancy, Pascal's law, effect of gravity on fluid pressure. Surface tension: Surface energy, phenomena involving surface tension, angle of contact, capillary rise,

Viscosity: Coefficient of viscosity, streamline & turbulent motion, Reynold's number, Stoke's law, terminal velocity, Bernoulli's theorem. Heat & Thermal Physics: Heat & temperature, thermal expansion of solids, liquids & gases, ideal gas laws, isothermal & adiabatic processes; anomalous expansion of water & its effects, sp. heat capacity,  $C_p$ ,  $C_v$ , calorimetry; change of state, specific latent heat capacity. Heat transfer; conduction, thermal and thermometric conductivity, convection & radiation, Newton's law of cooling, Stefan's law.

Thermodynamics: Thermal equilibrium (Zeroth law of thermodynamics), heat, work & internal energy. 1st law of thermodynamics, isothermal & adiabatic processes, 2nd law of thermodynamics, reversible & irreversible processes.

Kinetic theory of gases: Equation of state of a perfect gas, kinetic theory of gases, assumptions in Kinetic theory of gases, concept of pressure. & temperature; rms speed of gas molecules; degrees of freedom, law of equipartition of energy (introductory ideas) & application to specific heats of gases; mean free path, Avogadro number.

Oscillations & Waves: Periodic motion – time period, frequency, time-displacement equation, Simple harmonic motion (S.H.M) & its equation; phase; SHM in different systems, restoring force & force constant, energy in S.H.M.-KE & PE, free, forced & damped oscillations (introductory ideas), resonance wave motion, equation for progressive wave, longitudinal & transverse waves, sound waves, Newton's formula & Laplace's correction, factors affecting the velocity of sound in air, principles of superposition of waves, reflection of waves, standing waves in strings & organ pipes, fundamental mode, harmonics & overtones, beats, Doppler effect.

Electrostatics: Conservation of electric charges, Coulomb's law-force between two-point charges, forces between multiple charges; superposition principle & continuous charge distribution. Electric field, & potential due to a point charge & distribution of charges, electric field lines electric field due to a dipole; torque on a dipole in uniform electric field; electric flux, Gauss' theorem & its simple applications, conductors & insulators, free charges & bound charges inside a conductor; dielectrics & electric polarisation, capacitors & capacitance, combination of capacitors in series & in parallel, capacitance of a parallel plate capacitor with & without dielectric medium between the plates, energy stored in a capacitor.

Current Electricity:

Electric current, & conductor, drift velocity' mobility & their relation with electric current; Ohm's law, electrical resistance, Ohmic and non-Ohmic conductors, electrical energy & power, carbon resistors, colour codes, combination of resistances, temperature dependence of resistances, electric cell, emf and internal resistance of an electric cell, pd, combination of cells, secondary cells, (introductory) Kirchoff's laws of electrical network, simple applications, principle of Wheatstone bridge, metre bridge and potentiometer and their uses, thermoelectricity; Seebeck effect; Peltier effect, thermo emf.

Magnetic effect of current: Concept of magnetic field, Oersted's experiment, Biot - Savart law & its application to current carrying circular loop; Ampere's law & its applications to infinitely long straight wire, straight and toroidal solenoids; force on a moving charge in uniform magnetic & electric fields, cyclotron frequency; force on a current-carrying conductor in a uniform magnetic field, force between two parallel current-carrying conductors-- definition of ampere. Torque experienced by a current loop in a uniform magnetic field; moving coil galvanometer-its current sensitivity & conversion to ammeter & voltmeter, Inter-conversion of voltmeter & ammeter & change of their ranges.

Magnetics: Current loop as a magnetic dipole & its magnetic dipole moment, magnetic dipole moment of a revolving electron, magnetic field intensity due to a magnetic dipole bar magnet along its axis & perpendicular to its axis, torque on a magnetic dipole (bar magnet) in a uniform magnetic field; magnet as an equivalent



solenoid, magnetic field lines; Earth's magnetic field & its magnetic elements. para-, dia- & ferro- magnetic substances, with examples. Electromagnets & the factors affecting their strengths, permanent magnets.

Electromagnetic induction & alternating current: Electromagnetic induction; Faraday's laws, induced emf & current; Lenz's Law, eddy currents, self & mutual induction, alternating currents, peak and rms value of alternating current and voltage; reactance and impedance; LR & CR circuits, phase lag & lead, LCR series circuit, resonance; power in AC circuits, wattless current.

Electromagnetic waves: Electromagnetic waves and their characteristics (qualitative ideas only), transverse nature of electromagnetic waves, electromagnetic spectrum, applications of the waves from the different parts of the spectrum

Optics I (Ray optics): Reflection of light, spherical mirrors, mirror formula. Refraction of light, total internal reflection & its applications, optical fibres, refraction at spherical surfaces, lenses, thin lens formula, lensmaker's formula. Newton's relation: Displacement method to find position of images (conjugate points) Magnification, power of a lens, combination of thin lenses in contact, combination of a lens & a mirror refraction and dispersion of light through a prism; optical instruments, human eye, image formation & accommodation, correction of eye defects (myopia, hypermetropia) using lenses, microscopes & astronomical telescopes (reflecting & refracting) & their magnifying powers.

**Optics II (Wave Optics):** Scattering of light - blue colour of the sky, elementary idea of Raman effect; wave optics: wave front & Huygens' principle, reflection & refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection & refraction using Huygens' principle Interference, Young's double slit experiment & expression for fringe width, coherent sources, Fraunhofer diffraction due to a single slit,

Particle nature of light & wave particle dualism: Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation - particle nature of light, matter waves; wave nature of particles, de Broglie relation.

Atomic Physics: Alpha-particle scattering expt Rutherford's nuclear atom model of atom; Bohr model of hydrogen atom, energy levels in a hydrogen atom, hydrogen spectrum, continuous & characteristic xrays.

Nuclear Physics: Composition & size of nucleus, atomic masses, isotopes, isobars; isotones, radioactivity - alpha, beta & gamma particles/ rays & their properties; radioactive decay law; massenergy relation, mass defect; binding energy per nucleon & its variation with mass number; nuclear fission & fusion.

Solid state Electronics: Energy bands in solids (qualitative ideas only), conductors, insulators & semiconductors; semiconductor diode - I-V characteristics in forward & reverse bias, diode as a rectifier;

I-V characteristics of LED, photodiode, solar cell & Zener diode; Zener diode as a voltage regulator, junction transistor (BJT), transistor action, characteristics of a BJT, BJT as an amplifier (CE configuration) & oscillator; logic gates (OR, AND, NOT, NAND & NOR).

## CHEMISTRY

Atoms, Molecules and Chemical Arithmetic:

Dalton's atomic theory; Gay Lussac's law of gaseous volume; Avogadro's Hypothesis and its applications. Atomic mass; Molecular mass; Equivalent weight; Valency; Gram atomic weight; Gram molecular weight; Gram equivalent weight and mole concept; Chemical formulae; Balanced chemical equations; Calculations (based on mole concept) involving common oxidation - reduction, neutralization, and displacement reactions; Concentration in terms of mole fraction, molarity, molality and normality. Percentage composition, empirical formula and molecular formula; Numerical problems.

Atomic Structure:

Concept of Nuclear Atom - electron, proton and neutron (charge and mass), atomic number. Rutherford's model and its limitations; Extra nuclear structure; Line spectra of hydrogen atom. Quantization of energy (Planck's equation  $E = hv$ ); Bohr's model of hydrogen atom and its limitations, Sommerfeld's modifications (elementary idea); The four quantum numbers, ground state electronic configurations of many electron atoms and mono - atomic ions; The Aufbau Principle; Pauli's Exclusion Principle and Hund's Rule. Dual nature of

matter and light, de Broglie's relationship, Uncertainty principle; The concept of atomic orbitals, shapes of s, p and d orbitals (pictorial approach).

Radioactivity and Nuclear Chemistry:

Radioactivity  $\alpha$ -,  $\beta$ -,  $\gamma$  rays and their properties; Artificial transmutation; Rate of radioactive decay, decay constant, half-life and average age life period of radio-elements; Units of radioactivity; Numerical problems. Stability of the atomic nucleus – effect of neutron-proton (n/p) ratio on the modes of decay, group displacement law, radioisotopes and their uses (C, P, Co and I as examples) isobars and isotones (definition and examples), elementary idea of nuclear fission and fusion reactions.

The Periodic Table and Chemical Families:

Modern periodic law (based on atomic number); Modern periodic table based on electronic configurations, groups (Gr. 1-18) and periods. Types of elements – representative (s-block and p-block), transition (d-block) elements and inner transition (f-block/lanthanides and actinides) and their general characteristics. Periodic trends in physical and chemical properties – atomic radii, valency, ionization energy, electron affinity, electronegativity, metallic character, acidic and basic characters of oxides and hydrides of the representative elements (up to  $Z = 36$ ). Position of hydrogen and the noble gases in the periodic table; Diagonal relationships.

Chemical Bonding and Molecular Structure:

Valence electrons, the Octet rule, electrovalent, covalent and coordinate covalent bonds with examples; Properties of electrovalent and covalent compounds. Limitations of Octet rule (examples); Fajans Rule. Directionality of covalent bonds, shapes of poly-atomic molecules (examples); Concept of hybridization of atomic orbitals (qualitative pictorial approach):  $sp$ ,  $sp^2$ ,  $sp^3$  and  $dsp^2$ . Molecular orbital energy diagrams for homonuclear diatomic species – bond order and magnetic properties. Valence Shell Electron Pair Repulsion (VSEPR) concept (elementary idea) – shapes of molecules. Concept of resonance (elementary idea), resonance structures (examples). Elementary idea about electronegativity, bond polarity and dipole moment, inter- and intra-molecular hydrogen bonding and its effects on physical properties (mp, bp and solubility); Hydrogen bridge bonds in diborane.

Coordination Compounds:

Introduction, Double salts and complex salts, coordination compounds (examples only), Werner's theory, coordination number (examples of coordination number 4 and 6 only), colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds.

Solid State:

Classification of solids based on different binding forces: molecular, ionic, covalent and metallic solids, amorphous and crystalline solids (elementary idea). Unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, packing efficiency, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties. Band theory of metals, conductors, semiconductors and insulators and n & p type semiconductors.

Liquid State:

Vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations). Gaseous State:

Measurable properties of gases. Boyle's Law and Charles Law, absolute scale of temperature, kinetic theory of gases, ideal gas equation – average, root mean square and most probable velocities and their relationship with temperature. Dalton's Law of partial pressure, Graham's Law of gaseous diffusion. Deviations from ideal behavior. Liquefaction of gases, real gases, van der Waals equation; Numerical problems.

Chemical Energetics and Chemical Dynamics:

Chemical Energetics – Conservation of energy principle, energy changes in physical and chemical transformations. First law of thermodynamics; Internal energy, work and heat, pressure – volume work; Enthalpy. Internal energy change ( $\Delta E$ ) and Enthalpy change ( $\Delta H$ ) in a chemical reaction. Hess's Law and its

applications (Numerical problems). Heat of reaction, fusion and apourization; Second law of thermodynamics; Entropy; Free energy; Criterion of spontaneity. Third law of thermodynamics (brief introduction).

Chemical Equilibria – The Law of mass action, dynamic nature of chemical equilibria. Equilibrium constants, Le Chateliers Principle. Equilibrium constants of gaseous reactions ( $K_p$  and  $K_c$ ) and relation between them (examples). Significance of  $\Delta G$  and  $\Delta G^\ominus$ .

Chemical Dynamics – Factors affecting the rate of chemical reactions (concentration, pressure, temperature, catalyst), Concept of collision theory. Arrhenius equation and concept of activation energy.

Order and molecularity (determination excluded); First order reactions, rate constant, half – life (numerical problems), examples of first order and second order reactions.

Physical Chemistry of Solutions:

Colloidal Solutions – Differences from true solutions; Hydrophobic and hydrophilic colloids (examples and uses); Coagulation and peptization of colloids; Dialysis and its applications; Brownian motion; Tyndall effect and its applications; Elementary idea of emulsion, surfactant and micelle.

Electrolytic Solutions – Specific conductance, equivalent conductance, ionic conductance, Kohlrausch's law, Faraday's laws of electrolysis, applications. Numerical problems.

Non-electrolytic Solutions – Types of solution, vapour pressure of solutions. Raoult's Law; Colligative properties – lowering of vapour pressure, elevation of boiling point, depression of freezing point, osmotic pressure and their relationships with molecular mass (without derivations); Numerical problems.

Ionic and Redox Equilibria:

Ionic equilibria – ionization of weak electrolytes, Ostwald's dilution law. Ionization constants of weak acids and bases, ionic product of water, the pH – scale, pH of aqueous solutions of acids and bases; Buffer solutions, buffer action and Henderson equation.

Acid-base titrations, acid – base indicators (structures not required). Hydrolysis of salts (elementary idea), solubility product, common ion effect (no numerical problems).

Redox Equilibria: Oxidation – Reduction reactions as electron transfer processes, oxidation numbers, balancing of redox reactions by oxidation number and ion-electron methods. Standard electrode potentials ( $E^\ominus$ ), Electrochemical series, feasibility of a redox reaction. Significance of Gibb's equation:  $\Delta G^\ominus = - nF\Delta E^\ominus$  (without derivation), no numerical problems. Redox titrations with (examples); Nernst equations (Numerical problems).

Hydrogen:

Position of hydrogen in periodic table, occurrence, isotopes, preparation, properties and uses of hydrogen, hydrides-ionic covalent and interstitial; physical and chemical properties of water, heavy water, hydrogen peroxide – preparation, reactions and structure and use; hydrogen as a fuel.

Chemistry of Non-Metallic Elements and their Compounds:

Carbon – occurrence, isotopes, allotropes (graphite, diamond, fullerene); CO and CO<sub>2</sub> production, properties and uses. Nitrogen and Phosphorus – occurrence, isotopes, allotopes, isolation from natural sources and purification, reactivity of the free elements. Preparation, properties, reactions of NH<sub>3</sub>, PH<sub>3</sub>, NO, NO<sub>2</sub>, HNO<sub>2</sub>, HNO<sub>3</sub>, P<sub>4</sub>O<sub>10</sub>, H<sub>3</sub>PO<sub>3</sub> and H<sub>3</sub>PO<sub>4</sub>.

Oxygen and Sulphur – Occurrence, isotopes, allotropic forms, isolation from natural sources and purification, properties and reactions of the free elements. Water, unusual properties of water, heavy water (production and uses). Hydrogen peroxide and ozone (production, purification, properties and uses).

Halogens – comparative study, occurrence, physical states and chemical reactivities of the free elements, peculiarities of fluorine and iodine; Hydracids of halogens (preparation, properties, reactions and uses), inter- halogen compounds (examples); Oxyacids of chlorine.

Chemistry of Metals:

General principles of metallurgy – occurrence, concentration of ores, production and purification of metals, mineral wealth of India. Typical metals (Na, Ca, Al, Fe, Cu and Zn) – occurrence, extraction, purification (where

applicable), properties and reactions with air, water, acids and non-metals. Manufacture of steels and alloy steel (Bessemer, Open-Hearth and L.D. process).

Principles of chemistry involved in electroplating, anodizing and galvanizing. Preparation and properties of  $K_2Cr_2O_7$  and  $KMnO_4$ .

Lanthanoids – Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences.

Actinoids – Electronic configuration, oxidation states and comparison with

lanthanoids. Chemistry in Industry:

Large scale production (including physicochemical principles where applicable, omitting technical details) and uses of Sulphuric acid (contact process), Ammonia (Haber's process), Nitric acid (Ostwald's process), sodium bi-carbonate and sodium carbonate (Solvey process).

Polymers:

Natural and synthetic polymers, methods of polymerization (addition and condensation), copolymerization, some important polymers – natural and synthetic like polythene, nylon, polyesters, bakelite, rubber. Biodegradable and non-biodegradable polymers.

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 multimolecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation, emulsion – types of emulsions.

Environmental Chemistry:

Common modes of pollution of air, water and soil. Ozone layer, ozone hole – important chemical reactions in the atmosphere, Smog; major atmospheric pollutants; Green House effect; Global warming pollution due to industrial wastes, green chemistry as an alternative tool for reducing pollution, strategies for control of environment pollution.

Chemistry of Carbon Compounds:

Hybridization of carbon:  $\sigma$  – and  $\pi$  – bonds. Isomerism – constitutional and stereoisomerism; Geometrical and optical isomerism of compounds containing upto two asymmetric carbon atoms. IUPAC nomenclature of simple organic compounds – hydrocarbons, mono and bifunctional molecules only (alicyclic and heterocyclic compounds excluded).

Conformations of ethane and n-butane (Newman projection only). Electronic Effects: Inductive, resonance and hyperconjugation. Stability of carbocation, carbanion and free radicals; Rearrangement of carbocation; Electrophiles and nucleophiles, tautomerism in  $\beta$ -dicarbonyl compounds, acidity and basicity of simple organic compounds.

Compounds:

Alkanes – Preparation from alkyl halides and carboxylic acids; Reactions — halogenation and combustion.

Alkenes and Alkynes – Preparation from alcohols; Formation of Grignard reagents and their synthetic applications for the preparation of alkanes, alcohols, aldehydes, ketones and acids;  $S_N1$  and  $S_N2$  reactions (preliminary concept). Markownikoff's and anti-Markownikoff's additions; Hydroboration;

Oxymercuration-demercuration, reduction of alkenes and alkynes ( $H_2$ /Lindler catalyst and Na in liquid  $NH_3$ ), metal acetylides.

Haloalkanes and Haloarenes:

Haloalkanes – Preparation from alcohols; Nomenclature, nature of C -X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation. Formation of Grignard reagents and their synthetic applications for the preparation of alkanes, alcohols, aldehydes, ketones and acids;  $S_N1$  and  $S_N2$

reactions ( preliminary concept ). Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.

Alcohols:

Preparation of alcohols from carbonyl compounds and esters. Reaction – dehydration, oxidation, esterification, reaction with sodium,  $ZnCl_2/HCl$ , phosphorous halides.

Ethers – Preparation by Williamson's synthesis; Cleavage with  $HCl$  and  $HI$ . Aldehydes and Ketones – Preparation from esters, acid chlorides, gem-dihalides, Ca-salt of carboxylic acids. Reaction – Nucleophilic addition with  $HCN$ , hydrazine, hydroxyl amines, semi carbazides, alcohols; Aldol condensation, Clemmensen and Wolff – Kishner reduction, haloform, Cannizzaro and Wittig reactions.

Carboxylic Acids – Hydrolysis of esters (mechanism excluded) and cyanides; Hunsdicker and HVZ reactions.

Aliphatic Amines – Preparation from nitro, cyano and amido compounds. Distinction of 1<sup>o</sup>, 2<sup>o</sup> and 3<sup>o</sup> amines (Hinsberg method); Reaction with  $HNO_2$ ; Carbyl amine reaction.

Aromatic Compounds:

Benzene – Kekule structure, aromaticity and Hückel rule. Electrophilic substitution – halogenation, sulfonation, nitration, Friedel Crafts reaction, ozonolysis. Directive influence of substituents in monosubstituted benzenes. Carcinogenicity and toxicity.

Amines – Preparation from reduction of nitro compounds; Formation of diazonium salts and their stability; Replacement of diazonium group with  $H$ ,  $OH$ ,  $X$  (halogen),  $CN$  and  $NO_2$ , diazocoupling and reduction.

Haloarenes – Nature of  $C-X$  bond, substitution reactions; Nucleophilic substitution, cine substitution (excluding mechanism, Directive influence of halogen in monosubstituted compounds only).

Phenols – halogenation, sulfonation, nitration, Reimer – Tiemann and Kolbe reactions. Aromatic Aldehydes – Preparation by Gattermann, Gattermann-Koch, Rosenmund and Stephen's method. Reactions – Perkin, Benzoin and Cannizzaro.

Application Oriented chemistry:

Main ingredients, their chemical natures (structures excluded) and their side effects, if any, of common antiseptics, analgesics, antacids, vitamin-C.

Introduction to Bio-Molecules:

Carbohydrates – Pentoses and hexoses. Distinctive chemical reactions of glucose. Aminoacids – glycine, alanine, aspartic acid, cysteine (structures). Zwitterion structures of amino acids, peptide bond.

ADP and ATP – structures and role in bioenergetics; Nucleic acids – DNA and RNA skeleton structures. Names of essential elements in biological system.

Principles of Qualitative Analysis:

Detection of water soluble non-interfering Acid and Basic Radicals by dry and wet tests from among:

Acid Radicals:  $Cl^-$ ,  $S_2^-$ ,  $SO_4^{2-}$ ,  $NO_3^-$ ,  $CO_3^{2-}$ . Basic Radicals:  $Cu^{2+}$ ,  $Al^{3+}$ ,  $Fe^{3+}$ ,  $Fe^{2+}$ ,  $Zn^{2+}$ ,  $Ca^{2+}$ ,  $Mg^{2+}$ ,  $Na^+$ ,  $NH_4^+$ .

Detection of special elements (N, Cl, Br, I and S) in organic compounds by chemical tests. Identification of functional groups in: phenols, aromatic amines, aldehydes, ketones and carboxylic acids.

**APPENDIX - 8****Rules of the Examination**

1. Candidates are advised to reach the examination centers at least 30 minutes before commencement of the test.
2. Be sure about the exact location of your examination center and means of commuting to avoid any inconvenience, if any, on the day of examination.
3. No candidate will be allowed to seat for the test in any center other than the one allotted to him/her and as is mentioned in the admit card.
4. Any candidate found to occupy a seat other than the one allotted to him/her will be **reported against** and his/her paper will be cancelled.
5. Carry the following documents to enter the examination center:
  - a. A printed copy of admit card.
  - b. A copy of color photograph as was uploaded during online application.
  - c. Any photo identity card in original such as Aadhaar card/ Pan card / Passport/ voter card/ 10<sup>th</sup> standard admit card/ School – ID card.
6. Frisking may be carried out while entering the center for checking prohibited objects/articles..
7. Candidates are advised to take their seats at least 15 minutes before commencement of the test.
8. No candidate will be allowed to enter the examination center **beyond the scheduled time of commencement of the test for each half under any circumstances.**
9. **Candidates are not allowed to carry any written or printed material, calculator, pen, log table, wristwatch, any communication device like mobile phones, any blue tooth device etc. inside the examination hall. Any candidate found with such items will be reported against and his/her candidature will be summarily cancelled.**
10. Question booklets will be distributed well before commencement of the test. Take out the OMR sheet and check that your OMR number and question booklet number are same. If not, ask the invigilator to replace the whole set from same series (e.g., A/B/C/D).
11. Put your signature on the top of question booklet.
12. Read the instructions given on OMR and on the cover page of question booklet very carefully.
13. Write question booklet number and roll number at the appropriate places on the OMR. Wrong entry of question booklet number and roll number may lead to rejection of the OMR or wrong scoring, for which the Board will not be held responsible. If any candidate makes any mistake, he/she must **not** overwrite. Request the invigilator to strike it out and rewrite the correct numbers and put his/her (Invigilator) signature.
14. Darken the appropriate circle/bubbles of question booklet number, roll number and question booklet series (e.g., A/B/C/D).
15. Write your name in BLOCK LETTERS, name of the center and put your signature in appropriate places on the OMR. Do not put any stray mark anywhere else; it may lead to rejection of OMR.

16. Check that your roll number, photograph, spelling of your name in the attendance sheet matches with those given in your admit card. If any correction is needed, bring it to the notice of the invigilator.
17. Question booklets can be opened only at the time of commencement of test and as will be announced by the invigilator. Check all the pages of question booklet. If there is any damage or missing page or any difficulties to read the question booklet, ask your invigilator to replace the whole set from the same series (e.g., A/B/C/D).
18. Maintain silence during the test. Any conversation/gesticulation or creation of disturbances will be deemed as misdemeanor. If any candidate is found adopting any unfair means, his/her candidature will be cancelled, and / or he/she will be debarred either permanently or for a period as is deemed fit by the Centre- in- Charge.
19. No discussion will be allowed with the invigilator regarding any question.
20. Candidates may do rough work in the space provided in the question booklet.
21. No candidate will leave his/her seat without permission of the invigilator until the test is over.
22. No candidate will leave the hall till the end of the test and all OMRs are collected and tallied by the invigilator.
23. Candidates are allowed to take his/her question booklet after the test.
24. If any examinee is found impersonating, he/she will be **handed over to the police** and candidature of the original candidate will be cancelled outright.

## APPENDIX - 9

## District-wise list of examination zones for WBJEE-2023

Districts of W. B.	Zone	Zone code
Alipurduar	Alipurduar	10
Bankura	Bankura	11
Bankura	Bishnupur	12
Birbhum	Bolpur	13
Birbhum	Suri	14
Cooch Behar	Cooch Behar	15
Dakshin Dinajpur	Balurghat	16
Darjeeling	Kurseong	17
Darjeeling	Siliguri	18
Hooghly	Arambagh	19
Hooghly	Bandel/Chinsurah	20
Hooghly	Serampore	21
Howrah	Howrah Maidan/Shibpur	22
Howrah	Salkia/Bally/Uttarpara	23
Howrah	Santragachi/Domjur	24
Howrah	Uluberia	25
Jalpaiguri	Jalpaiguri	26
Jhargram	Jhargram	27
Kalimpong	Kalimpong	28
Kolkata	Central Kolkata (Moulali/Beliaghata/Narkel Danga/Phool Bagan/Kakurgachi/Park Circus)	29
Kolkata	North Kolkata (Shyam bazar/ Bagh Bazar/Girish Park/Burra Bazar/College Street/Sealdah)	30
Kolkata	Salt Lake/New Town (Salt Lake/Lake Town/New Town/Rajar Hat)	31
Kolkata	South Kolkata (Ballygaunge/Minto Park/Bhowanipore/Tollygaunge/Jadavpur)	32
Kolkata	West Kolkata (Joka/Behala/Alipore/Chetla/Khidirpore/Budge Budge)	33
Malda	Malda	34
Murshidabad	Berhampur	35
Murshidabad	Jiaganj	36
Murshidabad	Raghunathganj	37
Nadia	Kalyani	38
Nadia	Krishnanagar	39
Nadia	Nabadwip	40
North 24 Parganas	Ashoknagar	41
North 24 Parganas	Barasat (Airport/Madhyamgram/Barasat)	42



North 24 Parganas	Barrackpur (Dum Dum Jn. To Barrackpur)	43
North 24 Parganas	Basirhat	44
Paschim Burdwan	Asansol	45
Paschim Burdwan	Durgapur	46
Paschim Medinipur	Garbeta	47
Paschim Medinipur	Kharagpur	48
Paschim Medinipur	Medinipur	49
Purba Burdwan	Burdwan	50
Purba Medinipur	Contai	51
Purba Medinipur	Haldia	52
Purba Medinipur	Tamluk	53
Purulia	Purulia	54
South 24 Parganas	Garia/Sonarpur/Baruipur	55
South 24 Parganas	Jainagar	56
Uttar Dinajpur	Raiganj	57
Other States		
Assam	Silchar	58
Tripura	Agartala	59

- a) Candidates from West Bengal, Assam and Tripura must select any three zones from the above list in order of their preference.
- b) Candidates from other states must select any three zones from the following.

Districts of W.B.	Zone
Howrah	Salkia/Bally/Uttarpara
Kolkata	Salt Lake/New Town (Salt Lake/Lake Town/New Town/Rajar Hat)
Kolkata	South Kolkata (Ballygaunge/Minto Park/Bhowanipore/Tollygaunge/Jadavpur)
Kolkata	West Kolkata (Joka/Behala/Alipore/Chetla/Khidirpore/Budge Budge)
Paschim Burdwan	Asansol
Paschim Burdwan	Durgapur
Paschim Medinipur	Kharagpur

THE SCHEDULE  
[See clause (zc) of section 2]  
SPECIFIED DISABILITY

1. Physical disability.—

A. Locomotor disability (a person's inability to execute distinctive activities associated with movement of self and objects resulting from affliction of musculoskeletal or nervous system or both), including—

(a) "leprosy cured person" means a person who has been cured of leprosy but is suffering from—

(i) loss of sensation in hands or feet as well as loss of sensation and paresis in the eye and eye-lid but with no manifest deformity;

(ii) manifest deformity and paresis but having sufficient mobility in their hands and feet to enable them to engage in normal economic activity;

(iii) extreme physical deformity as well as advanced age which prevents him/her from undertaking any gainful occupation, and the expression "leprosy cured" shall construed accordingly;

(b) "cerebral palsy" means a Group of non-progressive neurological condition affecting body movements and muscle coordination, caused by damage to one or more specific areas of the brain, usually occurring before, during or shortly after birth;

(c) "dwarfism" means a medical or genetic condition resulting in an adult height of 4 feet 10 inches (147 centimeters) or less;

(d) "muscular dystrophy" means a group of hereditary genetic muscle disease that weakens the muscles that move the human body and persons with multiple dystrophy have incorrect and missing information in their genes, which prevents them from making the proteins they need for healthy muscles. It is characterised by progressive skeletal muscle weakness, defects in muscle proteins, and the death of muscle cells and tissue;

(e) "acid attack victims" means a person disfigured due to violent assaults by throwing of acid or similar corrosive substance.

B. Visual impairment—

(a) "blindness" means a condition where a person has any of the following conditions, after best correction—

(i) total absence of sight; or

(ii) visual acuity less than 3/60 or less than 10/200 (Snellen) in the better eye with best possible correction; or

(iii) limitation of the field of vision subtending an angle of less than 10 degree.

(b) "low-vision" means a condition where a person has any of the following conditons, namely:—

(i) visual acuity not exceeding 6/18 or less than 20/60 upto 3/60 or upto 10/200 (Snellen) in the better eye with best possible corrections; or

(ii) limitation of the field of vision subtending an angle of less than 40 degree up to 10 degree.

range of every day, social and practical skills, including—

(a) "specific learning disabilities" means a heterogeneous group of conditions wherein there is a deficit in processing language, spoken or written, that may manifest itself as a difficulty to comprehend, speak, read, write, spell, or to do mathematical calculations and includes such conditions as perceptual disabilities, dyslexia, dysgraphia, dyscalculia, dyspraxia and developmental aphasia;

(b) "autism spectrum disorder" means a neuro-developmental condition typically appearing in the first three years of life that significantly affects a person's ability to communicate, understand relationships and relate to others, and is frequently associated with unusual or stereotypical rituals or behaviours.

3. Mental behaviour,—

"mental illness" means a substantial disorder of thinking, mood, perception, orientation or memory that grossly impairs judgment, behaviour, capacity to recognise reality or ability to meet the ordinary demands of life, but does not include retardation which is a condition of arrested or incomplete development of mind of a person, specially characterised by subnormality of intelligence.

4. Disability caused due to—

(a) chronic neurological conditions, such as—

(i) "multiple sclerosis" means an inflammatory, nervous system disease in which the myelin sheaths around the axons of nerve cells of the brain and spinal cord are damaged, leading to demyelination and affecting the ability of nerve cells in the brain and spinal cord to communicate with each other;

(ii) "parkinson's disease" means a progressive disease of the nervous system marked by tremor, muscular rigidity, and slow, imprecise movement, chiefly affecting middle-aged and elderly people associated with degeneration of the basal ganglia of the brain and a deficiency of the neurotransmitter dopamine.

(b) Blood disorder—

(i) "haemophilia" means an inheritable disease, usually affecting only male but transmitted by women to their male children, characterised by loss or impairment of the normal clotting ability of blood so that a minor wound may result in fatal bleeding;

(ii) "thalassemia" means a group of inherited disorders characterised by reduced or absent amounts of haemoglobin.

(iii) "sickle cell disease" means a hemolytic disorder characterised by chronic anemia, painful events, and various complications due to associated tissue and organ damage; "hemolytic" refers to the destruction of the cell membrane of red blood cells resulting in the release of hemoglobin.

5. Multiple Disabilities (more than one of the above specified disabilities) including deaf blindness which means a condition in which a person may have combination of hearing and visual impairments causing severe communication, developmental, and educational problems.

6. Any other category as may be notified by the Central Government.

**Appendix-11**

Institution-wise and course-wise seats under **Defence Quota** for academic session 2022-23.

Sl.No.	Name of the Institution	Name of the available course(s)	No. of seats
1.	Jadavpur University	To be decided by the University Authority	2
2.	Jalpaiguri Government Engineering College, Jalpaiguri	Mechanical Engineering	1
		Information Tech.	1
3.	Kalyani Government Engineering College, Kalyani, Nadia	Electrical Engineering	1
4.	Ramkrishna Mahato Government Engineering College, Purulia	Comp. Sc. & Engineering	1
		Electronics & Communication Engineering	1
5.	Cooch Behar Government Engineering College, Cooch Behar	Comp. Sc. & Engineering	1
		Electronics & Communication Engineering	1
6.	Government College of Engineering and Leather Technology, Kolkata	Leather Technology	1
7.	Govt. College of Engineering & Ceramic Technology, Kolkata	Information Tech.	1
8.	Govt. College of Engineering & Textile Technology, Serampore	Information Tech.	1
9.	Govt. College of Engineering & Textile Technology, Berhampore	Comp. Sc. & Engg.	1

\*\* The list for academic session 2023-24 shall be published before counselling.