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1. INTRODUCTION :

The West Bengal Joint Entrance Examinations Board was formed as 'West Bengal Board of Examination for Admission to Engineering Degree Colleges' in the year 1962, born out of a concept of holding a common admission test for the Engineering Colleges of the State of West Bengal. The basic purpose was to select candidates to be considered for admission to the State Colleges on the basis of the results of a single competitive examination which would also lead to saving of time, energy and expenditure on the part of the candidates in appearing at number of entrance tests.

Since inception, the Office of the Board did function at 'Slater Hall' in the campus of the Bengal Engineering and Science University, Shibpur (erstwhile known as "Bengal Engineering College, Shibpur") till January 2008.

At present, (with effect from 2008-09) the Board is functioning at AQ-13/1, Sector – V, Salt Lake, Kolkata - 700 091.

At present, the Board conducts five entrance examinations as stated :

	Exams.	Scope of admission
1	'JEM'	For admission to degree level Engineering & Technology courses including Dairy Technology / Pharmaceutical Technology / Agricultural Engineering, etc. as well as Medical, Dental, etc. courses in different Universities / University Departments / Government Colleges as well as Self Financing Colleges of the State of West Bengal. N.B.-This year for the first time a separate admission test will be conducted by the WBJEE Board for admission to degree level course in VETERINARY SC. & ANIMAL HUSBANDRY.
2	'JECA'	For admission to Post Graduate level Master of Computer Application (MCA) course conducted in different Engineering & Technology Colleges as well as in different Universities/University Department of the State of West Bengal.
3	'JELET'	For direct admission to 2 nd Year (3 rd Semester Level) of 4 years degree level Engineering & Technology/Pharmacy courses by the diploma holders in Engineering & Technology/Pharmacy. This is also applicable for B.Sc. degree holders with mathematics as a subject in the graduation level.
4	'JENPARH'	For admission to degree level courses of Ayurvedacharya, Homoeopathy, Unani, Nursing (H) and Physiotherapy.
5	'JEHOM'	For admission to degree level Hotel Management & Catering Technology courses in AICTE approved self financing Hotel Management Institutions of the State.

2. Scheme of Examination 'JEM - 2009' :

It is the Entrance Test for admission to different degree level Engineering & Technology/ Dairy Technology/ Pharmacy/ Agricultural Engineering, etc as well as degree level Medical / Dental courses in Universities / University Departments / Government colleges as well as Self Financing Colleges of the State of West Bengal.

- 2.1 The Examination “JEM-2009” will consist of 4 (Four) papers: i) Mathematics (100 marks), ii) Physics (50 marks) & Chemistry (50 marks) and iii) Biological Sciences (100 marks).

There are three different options for a student while appearing in the Joint Entrance Examination (JEM-2009) as stated below:

Options	Availability of Courses for admission through ‘JEM-2009’	Subject to be appeared (JEM -2009)	Type of form to be applied
1	Engineering & Technology / B.Arch./ Dairy Technology / Agricultural Engineering / Pharmacy	Mathematics, Physics & Chemistry	‘E’
2	Medical / Dental/ Pharmacy	Biological Science, Physics & Chemistry	‘M’
3	Engineering & Technology / B.Arch. / Dairy Technology / Agricultural Engineering / Pharmacy / Medical / Dental	Mathematics, Physics, Chemistry and Biological Sciences	‘C’

2.1 The Question Pattern :

There will be Multiple Choice Questions (MCQ-type, with four options including single correct answer) carrying 80% weightage of the total marks and remaining 20% will be of short answer type. **In MCQ type, for each incorrect response, 33.33% of mark would be deducted** and more than one answer indicated against one question will be treated as incorrect response/answer. All questions will have to be answered on specially designed machine gradable answer sheets. **Answers are to be marked using blue/black ball point pen only** on the ‘OMR sheet’ and answer to the ‘Short Questions’ are to be written in blue/black ball point pen on the answersheet provided for the purpose.

2.3 Schedule of Examination “JEM - 2009” :

Date of Examination	9.30 a.m. to 11.30 a.m.	12.30 p.m. to 2.30 p.m.	3.30 p.m. to 5.30 p.m.
19.04.2009 (Sunday)	Mathematics (100 marks)	Physics (50 marks) & Chemistry (50 marks)	Biological Sciences (100 marks)

N.B. No further examination shall be held under any circumstances for those who will be unable to appear in WBJEE on the scheduled date of the examination.

3. Eligibility criteria for candidates :

- 3.1 Applicant must be a citizen of India.

3.2 **Age restriction :**

Candidates must be **17 (seventeen)** years of age or above as on **31.12.2009**. There is no upper age limit except for the Marine Engineering Course for which the upper age limit is 20 Years as on 01.01.2009.

3.3 **Residential requirements and certificates from Competent Authorities :**

Candidates desirous of seeking admission to Government Engineering/Technology Colleges, Govt. Medical and Dental Colleges as well as to Private Medical and Dental Colleges must have been residing in the State of West Bengal continuously at least for last 10 (ten) years as on 31.12.2008 or their parents must be permanent resident of West Bengal having their permanent home addresses in the State of West Bengal.

Certificate of residence in this respect shall have to be produced in the proforma as printed in the Application Form for JEM-2009 from any of the **Competent Authorities** as given below. The proforma of residential certificate as printed in the form is required to be filled in properly (either 'A' or 'B' as applicable).

The Residential Certificate as applicable (**A or B**) should be obtained from any of the following competent authorities, [viz., District Magistrate/Additional District Magistrate/Deputy Magistrate /Deputy Collector/Sub-Divisional Officer/Block Development Officer/ Superintendent of Police or Additional Supdt. of Police/Chief or Additional Chief Metropolitan Magistrate/Director of Scheduled Caste and Tribe Welfare/Commissioner, Additional Commissioner, Joint Commissioner, Deputy Commissioner of Kolkata Police / Deputy Secretary or above to the Government of West Bengal/Heads of the Institutions (located in West Bengal) where the applicants are presently studying or last studied/Members of Parliament in West Bengal/Members of West Bengal Legislative Assembly/ Sabhapati - Panchayet Samity/Mayor-in-Council-Municipal Corporation/ Municipal Commissioner and Chairman Borough Committee] in whose jurisdiction the candidates reside.

3.4 **Academic requirements :**

3.4(a) **For Engineering & Technology courses :**

For all the Courses except B. Arch., Marine Engineering and B. Pharmacy : General candidates must pass H.S. (10+2) or it's equivalent examination with a minimum of 50% marks in Physics, Chemistry and Mathematics taken together (40% for SC/ST candidates) and with at least 30% marks in English (for all category of candidates) with individual pass marks in Physics, Chemistry, Mathematics, English and Vernacular (or any other fifth subject).

For Marine Engineering Course : The minimum percentage of marks is 60 % in place of 50% in Physics, Chemistry and Mathematics taken together in '10+2' level with at least 50% marks in English either in 10th or in 12th Standard.

For B. Pharm. Course : General candidates must pass H.S.(10+2) or it's equivalent examination with a minimum of 50% marks in Physics, Chemistry and Mathematics/Biology taken together (in

Physics, Chemistry and Mathematics only applicable for Jadavpur University), with at least 30% marks in English and having individual pass marks in Physics, Chemistry, Mathematics/Biology, English and Vernacular (or any other fifth subject) for all category of candidates. For SC/ST candidates, the minimum marks is 40% in Physics, Chemistry & Mathematics/Biology taken together.

For B. Arch course : A candidate, besides satisfying the eligibility criteria as stated in 3.4(a), Para-1, must have to qualify in the **NATA (National Aptitude Test in Architecture)** conducted by the Council of Architecture (New Delhi) and necessary document in this regard is to be produced at the time of Counselling.

3.4(b) **For Medical and Dental courses :**

General Candidates must pass H.S. (10+2) Examination of West Bengal Council of Higher Secondary Education or equivalent examination recognized by the West Bengal University of Health Sciences with individual pass marks in Physics, Chemistry, Biology, English and Vernacular (or any other fifth subject) along with a minimum of 50% marks in Physics, Chemistry and Biology taken together in the said qualifying examination (10+2). In addition, candidates must have to secure at least 50% marks in Physics, Chemistry and Biological Sciences taken together in the Joint Entrance Examination, West Bengal.

In respect of SC/ST candidates, the aforesaid marks will be 40% instead of 50% in the qualifying examination (10+2) as well as in the Joint Entrance Examination.

4.0 Syllabus of Examination “JEM-2009” : As mentioned in **APPENDIX-I**.

5.0 Application Procedure :

5.1 a) **Availability of Application Form:** The **application kit** (i.e., prescribed printed application form along with Information Brochure and posting envelop) will be available from the different branches of **United Bank of India** (as specified in the advertisement) on payment of Rs.500/- (for E & M type Form) and Rs.600/- for C type Form in cash **from 28.11.2008 to 31.12.2008**. The application form once purchased cannot be returned or replaced.

b) The **application kit** may also be obtained by post from the Board on application with an additional fee of Rs.100/- (Rupees Hundred Only). The total amount (i.e. cost of application form plus 100/-) has to be paid through Demand Draft drawn in favour of “West Bengal Joint Entrance Examinations Board” payable at Kolkata/Howrah.

Last date for request for Application Kit by post is **18.12.2008**.

The Board shall not be responsible for non-receipt of request for Application Form within stipulated date by post due to postal delay.

c) The Application Kit can also be obtained only from the office of the Board at AQ-13/1, Sector – V, Salt Lake, Kolkata - 700 091 with payment of the actual cost of the Form and **late fee** of Rs.100/- (Rupees one hundred only) through a Bank Draft to be drawn in favour of “West Bengal Joint Entrance Examinations Board” payable at Kolkata/Howrah for the period from **01.01.2009 to 07.01.2009**.

5.2 **Guidelines for filling in the Application Form** : As provided in **APPENDIX-II**.

5.3 **Submission of Application Form** : The duly filled in Application Form must be sent in the printed envelop provided in the “Application Kit” through **Speed Post only** to the Member Secretary, West Bengal Joint Entrance Examinations Board, AQ-13/1, Sector-V, Salt Lake, Kolkata – 700 091.

The last date for receipt of completed Application Form by Speed Post only is **14.01.2009**.

Candidates must enclose the Bank slip marked “**Board Copy**” along with the application form. The Bank slip marked “**candidate copy**” must be retained by the candidate.

No application will be received by hand or through other agencies.

Last Date for receipt of Application Forms : 14th January,2009. Forms received after the last date will not be processed.

6. **Issue of Admit Card** : After the receipt of Application Form by the Board, an Admit Card will be sent to the applicant indicating his/her Examination Centre of the Joint Entrance Examination. **The Form Number will serve as the Enrolment Number.**

In case the applicant does not receive the Admit Card by April 4, 2009, he/she should contact this Board website to ascertain as to whether his/her Application Form Number is included within the cancellation list of application forms. If not, then he/she should contact personally/through authorized representative along with following relevant documents for procurement of duplicate admit card.

- a) *Xerox copy of the filled-in Application Form.*
- b) *Postal slip for despatch of filled-in Application Form (Speed Post).*
- c) *Two identical copies of the colour photographs (as pasted in the Application Form) duly attested by the Head of the recognised institution last attended.*
- d) *Bank Slip (which is retained by the candidate).*
- e) *Original admit cards of Madhyamik(10th Standard) or equivalent examinations/H.S.(10+2) or equivalent examinations.*

Duplicate admit card will be issued from the office of the Board, to the concerned candidates in person from 11 a.m. to 4 p.m. during the period from 07.04.2009 to 10.04.2009.

After receipt, if the Original admit card is lost before examination then for obtaining the duplicate admit card the original copy of the missing diary lodged in the local police station in this regard will have to be produced in addition to the aforesaid documents; as stated above [Vide a) to e)]. Requisite fee of Rs.200/- (Rupees Two hundred only) in the form of a Bank Draft to be drawn in favour of “West Bengal Joint Entrance Examinations Board,” payable at Kolkata/Howrah has to be paid for the purpose.

Candidates must ensure that the photographs on the admit card are not mutilated/distorted/soiled even by accident. **Candidates with such admit cards will not be allowed to appear in the Joint Entrance Examination.**

Candidates must retain their admit cards carefully in a secured place in undamaged condition in all respect till the completion of admission procedure.

No duplicate Admit Card will be issued after the Joint Entrance Examination under any circumstances.

All applicants who appear to be prima facie eligible are provisionally permitted to sit for the Joint Entrance Examination. If, after scrutiny at any stage, it is found that an applicant is otherwise ineligible his/her candidature will be automatically cancelled even if he/she has appeared at the Examination and secured a position in the merit list or at any stage during Counselling/admission or registration.

The candidature of a candidate will be automatically cancelled if he/she fails to produce any of the required appropriate documents in original during admission / registration for fulfillment of eligibility and other criteria.

7. Centre of Examination :

- The allotment of examination centre will be completely at the discretion of the Board. No request for change of allotted centre will be entertained under any circumstances.
- Candidates must indicate the name of the states by ticking the appropriate **State Box** on the top of the printed envelop received in the Application Kit.
- Candidates residing in West Bengal must also specify their district on the top of the printed envelop received in the Application Kit in the **Box** provided for the purpose.

8. Procedure for conduct of Examination : See APPENDIX - III

9. Evaluation and Declaration of Results of JEM – 2009 :

- 9.1 **Rules for scrutiny/review of Answer Sheet :** The Board neither publishes nor communicates the result to any individual applicant. It does not have any provision for post publication scrutiny and /or review and hence will not entertain any such application after the examination.
- 9.2 Results of 'JEM – 2009' are likely to be declared by June 15, 2009. Results will be available in various websites over and above the website of the Board, which will be announced in various electronic / printing media. The Board will publish the merit list(s). The no. of merit listed candidates will be decided by the appropriate authority.
- 9.3 Rank Card will be issued only to the merit listed candidates in due course after declaration of the results.

10. Legal Jurisdiction :

- 10.1 All disputes pertaining to conduct of JEM – 2009 shall fall within the jurisdiction of Kolkata only.
- 10.2 The Board will not be a party pertaining to any dispute arising in the process of admission to any course of study through JEM – 2009.

11. Admission :

- 11.1 It should be noted that the Board is in no way responsible for admission to the Constituent Universities/ University Departments/Colleges. Allotment of seats to any Engineering/ Technology/ Pharmacy/Medical/Dental college shall be governed by concerned Central Selection Committees and accordingly candidates have to comply with the requirements of eligibility conditions for admission as would be laid down by concerned Central Selection Committees of the State. The Board only provides the Merit Lists of the Entrance Examination. The Merit List does not make a candidate eligible for admission to any constituent University/University Department/ College.

No merit listed candidate will be allowed to appear at the counselling unless he/she is able to produce admit card issued by the Board with proper unmutilated / undistorted / unsoiled photograph.

- 11.2 However, particulars regarding availability of branches in Engineering & Technology / Pharmacy / B. Arch. as well as in M.B.B.S./Dental Courses along with existing Universities/University Departments / Institutions offering such courses are provided herewith for ready reference of intending students. It is to be noted that final list for availability of seats in B.E. / B. Tech. and/or M.B.B.S./B.D.S. shall be provided by concerned Central Selection Committees prior to the counselling and allotment.

12. **Certificate for SC/ST** : Scheduled Caste / Scheduled Tribe candidates in W.B., as specified in Govt. of W. B. Order No. 111(2)-TW/EC dated 07.03.91/ order no. 905-TW/EC/SC/O/MR-1/95(1) dated 12.09.1995 are eligible for admission through Joint Entrance Examination, 2009. **However, SC / ST candidates hailing from States other than West Bengal are not eligible for such benefit and they will be treated as General Category candidates.** The Caste certificates will have to be produced at the time of counselling from the competent authorities viz., District Magistrate, Collector, Addl. District Magistrate, Dy. Collector, Sub-Div. Officer, Sub-Div. Magistrate, Executive Magistrate, 1st Class Stipendiary Magistrate, Chief Metropolitan Magistrate, Kolkata, Addl. Chief Metro. Magistrate, Kolkata, Metropolitan Magistrate, Kolkata and Collector of Land Revenue, Deputy Collector of Land Revenue, within their respective jurisdictions. However, Director/ Deputy Director, Scheduled Caste and Tribes Welfare Department, Govt. of West Bengal can issue such certificate in case of candidates claiming to be Scheduled Caste or Scheduled Tribe residing in any part of West Bengal.

13. Admission to B.E. / B. Tech. / B. Pharm. / B. Arch. / B. Agricultural Engineering :

13.1 List of Universities /University Departments / Institutions offering different degree level Engineering/ Technology/ B. Pharm. / B. Arch. / B. Agricultural Engineering, etc. courses as on 28.11.2008

Sl. No.	Institution Name & Address	Branch
A. University & University Departments		
1	BENGAL ENGINEERING AND SCIENCE UNIVERSITY, SHIBPUR College Road, P.O. – Botanical Garden, Howrah – 711 103 (033) 2668-4561-63 / 2668-0521-25, (033) 26682916 www.becs.ac.in	CE, CST, EE, ETC, IT, ME, MT, MN, AR, ASE
2	JADAVPUR UNIVERSITY Kolkata – 700 032 (033) 2414-6007 / 2414 6666/6194/6643, Fax: (033) 2414 6414/6007 www.jadavpur.edu	AR, CH, CE, CSE, EE, ECE, ME, MT, PH, PE, PT, PW, COE, EIE, IT
3	KALYANI UNIVERSITY SCIENCE INSTRUMENTATION CENTRE P.O. Kalyani, Dist Nadia, Pin- 741 235 (033) 2582 3457 (Direct) 2582 8750 Ext. 297/ 298, (033) 25828282 www.klyuniv.ac.in	AEIE / EIE, IT
4	UNIVERSITY INSTITUTE OF TECHNOLOGY Golapbag North, Burdwan – 713 104 (0342) 2558776 / 777, (0342) 2530452 www.buruniv.ac.in www.uit.html	CSE, ECE, AEIE / EIE, IT, CE, EE
5	WEST BENGAL UNIVERSITY OF TECHNOLOGY BF-142, Salt Lake, Sector-I, Kolkata – 700 064 (033) 2321-1327 / 1345, (033) 23341034 www.wbut.net	IT, CSE
B. State Government Funded Institutions		
6	GOVT. COLLEGE OF ENGINEERING & CERAMIC TECHNOLOGY 73, A. C. Banerjee Lane, Kolkata – 700 010 (033) 2370 1264 www.gcect.ac.in	CSE, CT, IT
7	GOVT. COLLEGE OF ENGINEERING & TEXTILE TECHNOLOGY 4, Barrack Square East, P.O.- Berhampore, Murshidabad-742110 (03482) 252809 / 250142, www.gcettb.org	CSE, TT

Sl. No.	Institution Name & Address	Branch
8	GOVT. COLLEGE OF ENGG. & TEXTILE TECHNOLOGY 12, William Carey Road, Serampore – 712 201 (033) 2662 1058 / 3156 www.gcetts.org	CSE, IT, TT, APM
9	GOVERNMENT COLLEGE OF ENGINEERING & LEATHER TECHNOLOGY L. B. Block, Sector – III, Salt Lake City, Kolkata – 700 098 (033) 2335-6977, Fax (033) 2335 6977	LT, CSE, IT
10	JALPAIGURI GOVERNMENT ENGINEERING COLLEGE P.O. – Jalpaiguri Government Engineering College, Jalpaiguri-735 102 (03561) 255131/ 255132 www.jgec.org	CE, CSE, EE, ECE, IT, ME
11	KALYANI GOVERNMENT ENGINEERING COLLEGE Kalyani University Campus, P.O.- & P.S.- Kalyani, Nadia – 741 235 (033) 2582 6680 (PBX)/ 2582/ 1309 (Principal)/ 2580 8437 (A.O.), www.kgec.org	CSE, ECE, EE, ME, IT
C. Central Government Institution.		
12	NATIONAL POWER TRAINING INSTITUTE Eastern Region Durgapur, City Centre, Durgapur – 713 216 (0343) 2545888 / 2546237 / 2546887, (0343) 2545888 www.npti.nic.in www.nptidgp.com	PW
D. Autonomous Institutions (receiving grant-in-aid).		
13	INSTITUTE OF JUTE TECHNOLOGY 35, Ballygunge Circular Road, Kolkata-19 (033) (033) 2461 5477 / 5326, Fax : (033) 2461 5632 www.ijtindia.org	JFT, JT
E. Private / Self-Financing Institutions.		
14	ASANSOL ENGINEERING COLLEGE Sen-Religh Road, Kanyapur, Asansol –713 304 (0341) 2252108 / 2253057, Fax (0341) 2254248 / 2253056 www.aecwb.net www.aecwb.ac.in	CSE, ECE, IT, ME, EE, AEIE / EIE
15	ARYABHATTA INSTITUTE OF ENGINEERING & MANAGEMENT, Panagarh Gram P.O.- Panagarh Bazar, Dist : Burdwan, Pin : 713 148 (0343) 2526417/ 416/ 415, Fax : (0343) 2526417 www.aiemd.in	CSE, ECE, IT, EE, EEE

Sl. No.	Institution Name & Address	Branch
16	ACADEMY OF TECHNOLOGY P.O.- Aedconagar, Hooghly- 712 124 (033) 2684 2888 / 2684 0002 / 2684 0003, Fax : (033) 2684 2888 www.atechindia.org	CSE, ECE, EE, IT, AEIE/ EIE, ICE / CIE
17	ADAMAS INSTITUTE OF TECHNOLOGY Barasat-Barrackpre Road, Barasat, North 24 Parganas, Kolkata-700 126 (033) 2564-0604 / 4340 Fax- (033) 2564-7304	ECE, CSE, IT, CE
18	ABACUS INSTITUTE OF ENGINEERING & MANEGEMENT Mogra, Nutangram, Bandel - Mogra Area, P.O.- Mogra, Dist.- Hooghly-712148 Ph.No. (03213) 202076/89, www.abacausinstitute.com	CSE, ECE, IT, AEIE
19	BANKURA UNNAYANI INSTITUTE OF ENGINEERING Subhankar Nagar, P.O.-Poaha Bagan, Bankura – 722 146 (03242) 259360 / 255955/ 240800, (0324) 2240800 www.buie.info	CSE, ECE, EE, IT, AEIE/EIE
20	BENGAL COLLEGE OF ENGINEERING & TECHNOLOGY Sahid Sukumar Bannerjee Sarani, Bidhan Nagar, Durgapur-713 212 (0343) 2533189 / 90, (0343) 2536756, (0343) 2532606 Fax : (0343) 2533186, www.bcetdgp.ac.in	CSE, ECE, AEIE/EIE, IT, EEE, BT, CE, ME
21	BENGAL COLLEGE OF PHARMACEUTICAL SCIENCE & RESEARCH Biplabi Rasbehari Basu Sarani, Bidhan Nagar, Durgapur – 713212 (0343) 253 2606, 253 3189 Fax- (0343) 253 3186	PH
22	BENGAL INSTITUTE OF TECHNOLOGY & MANAGEMENT BITM Campus, Santiniketan, P.O.- Doranda, Pin: 731 235 (03463) 271353/ 4/ 271371 City : 98300 08167/ 2212 1007/ 1008/ 7540, (033) 22377540 www.cameliagroup.org	CSE, ECE, EE, IT, AEIE/EIE
23	BENGAL INSTITUTE OF PHARMACEUTICAL SCIENCES, KALYANI (AYURVEDA) State Pharmacopeial Laboratory Campus, Kalyani, Nadia (033) 2686 2027/2868/6450 3121/2589 1768 Fax : 2686 4281/2589 1742 www.bipskalyani.org	PH (AV)
24	BENGAL SCHOOL OF TECHNOLOGY Sugandha, Delhi Road, P.O.- Sugandha, Dist- Hooghly, Pin – 712202 2686-6064, (033) 26862482	PH

Sl. No.	Institution Name & Address	Branch
25	BIRBHUM INSTITUTE OF ENGINEERING & TECHNOLOGY P.O. Suri, Dist: Birbhum , Pin : 731 101. (03462) 255748, 255749, 256839, 258487, Fax : (0346) 2258488 www.bietsuri.com	CSE, ECE, EE, IT, CE, ME
26	BCDA COLLEGE OF PHARMACY & TECHNOLOGY, HRIDAYPUR 78, Jessore Road, Hridaypur (South), Kolkata – 700127, 24 Pgs(N) (033) 2584 2433, Fax : 2584 2665	PH
27	BENGAL INSTITUTE OF TECHNOLOGY Tech Town, Dhapa Manpur on Basanti Highway, Hadia, Kolkata-150 (033) 2345 8001/ 04 City : 2226 4396 / 9785, (033) 23458077 www.bitonline.in	CSE, ECE, IT, BT
28	B. P. PODDAR INSTITUTE OF MANAGEMENT & TECHNOLOGY 137, VIP Road, Poddar Vihar, Kolkata – 700 052 (033) 2573 9607 / 9608 / 9609 / 9610, (033) 2573 9401 www.bppimt.ac.in	CSE, ECE, IT, EE
29	BHARAT TECHNOLOGY Vill P.O.- Jadurberia, P.S.-Uluberia, Howrah-711316 2709-4430, 9831633144	PH
30	COLLEGE OF ENGINEERING AND MANAGEMENT, KOLAGHAT P.O.- KTPP Township R.S. (Mecheda) Dist : Midnapore (East), Pin – 721 171 (03228) 250600 / 250971 / 249443, Fax : (0322) 8250880 www.cemkolaghat.org	CSE, ECE, EE, IT, AEIE/EIE
31	CALCUTTA INSTITUTE OF ENGINEERING & MANAGEMENT 24/1A, Chandi Ghosh Road, Tollygunge I.T.I. Campus, Kolkata – 40 (033) 2421 9951/ 8998, Fax : (033) 24816767 www.ciem.in	CSE, ECE, EE, IT, ICE/CIE
32	CALCUTTA INSTITUTE OF TECHNOLOGY P.O.- Banitabla, Uluberia, Howrah-711 316 (033) 2709-4367 / 30948176 / 26418428, Fax : (033) 26610736	CSE, ECE, IT, CH

Sl. No.	Institution Name & Address	Branch
33	CALCUTTA INSTITUTE OF PHARMACEUTICAL TECH. AND ALLIED HEALTH SCIENCES. Banitabla, Checkpost, P.O.-Banitabla, Uluberia, Howrah – 711 316 (033) 2709 4367 / 9831106443, (033) 26610736 www.urschard.org	PH
34	CAMELLIA INSTITUTE OF TECHNOLOGY Digberia (Babu Road) Madhyamgram, Kolkata – 700 129 (033) 6455 1145 / 1146 / 1660 Fax : (033) 2212 1007 www.cameliagroup.org	CSE, ECE, EEE, IT, AEIE/EIE
35	CAMELLIA SCHOOL OF ENGINEERING & TECHNOLOGY Nadibhag, P.O.- Badu Road, Madhyamgram, Kolkata – 700 129 (033) 32486971 / 72 www.cameliagroup.org	ECE, CSE, IT, EE
36	DR.B.C.ROY ENGINEERING COLLEGE Jemua Road, Fuljhore, Durgapur – 713 206, Dist : Burdwan (0343) 2501353 / 2604106 / 4121 / 4122, Fax : (0343) 2504059 www.bcrec.org www.bcrec.net.in	CSE, ECE, EE, IT, AEIE/EIE, ME
37	DR.B.C.ROY COLLEGE OF PHARMACY AND ALLIED HEALTH SCIENCES Dr. Meghnath Saha Sarani, Bidhannagar, Durgapur – 713 206, (0343) 5522496 / 2532678, (0343) 23218703, Fax: (0343)2532 679 www.bcrec.org www.bcrec.net.in	PH
38	DURGAPUR INSTITUTE OF ADVANCED TECHNOLOGY & MANAGEMENT G.T. Road Rajbandh, Durgapur – 713 212, Dist: Burdwan. (0343) 2520712/ 13, Fax: (0343) 2520881 www.diatm_rahul.ac.in	CSE, ECE, EE, IT, CH, ME
39	DUMKAL INSTITUTE OF ENGINEERING & TECHNLOGY P.O.+P.S.- Dumkal, Dist. Murshidabad, West Bengal, Pin – 742 303 (03481) 230033, Fax: (0348) 1231188 www.b-e-s.net	CSE, ECE, IT, EE, AEIE/EIE
40	DREAM INSTITUTE OF TECHNOLOGY, Samali, PO.-Nahazari, PS.-Bishnupur, 24Pgns(S), Kolkata-104 033-3093-6088, Fax: (033) 24580244	CSE, ECE, AEIE/EIE, EE

Sl. No.	Institution Name & Address	Branch
41	FUTURE INSTITUTE OF ENGINEERING & MANAGEMENT Campus – Sonarpur Station Road, Teghori, P.O.-R.K.Pally, Kol-150 (033) 2434 5615/ 5640, Fax: (033) 24345641 www.fiemonline.org	CSE, ECE, IT, EE, ME. AEIE/EIE
42	GUPTA COLLEGE OF TECHNOLOGICAL SCIENCE Ashram More, G.T.Road, Asansol-713 301, Dist: Burdwan (0341) 2213120 / 2214604, Fax: (0341) 2214604 www.gcts.org	PH
43	GURUNANAK INSTITUTE OF TECHNOLOGY 157, Nilgunj Road, Panihati Road, Kolkata – 700 144 2563 7929/ 7957, (033) 25637957 www.jisgroup.ac.in/gnit/	CSE, ECE, EE, IT, AEIE/EIE, FT
44	GURUNANAK INSTITUTE OF PHARMACEUTICAL SCIENCE & TECHNOLOGY 157/F, Nilgunj Road, Panihati, Kolkata – 114 2523-1247, (033) 25637957 www.gnipst.ac.in	PH
45	GREATER KOLKATA COLLEGE OF ENGINEERING AND MANAGEMENT Dudhnai, Baruipur, Ramnagar-II, 24 Pgs. (South) (033) 24305897 Fax: (033) 2430 5897	CSE, ECE, IT, AEIE/EIE
46	HALDIA INSTITUTE OF TECHNOLOGY HIT, Haldia, Dist: Purba Medinipur, Pin-721 657 (03224) 252900 EPBX 253061/ 203062/ 252850, Fax: (0322) 4252800 www.hit-haldia.net	CSE, ECE, BT, CE, CH, EE, AEIE/EIE, FT, ICE/CIE, ME, PE, IT
47	H. C. GARG INSTITUTE OF SCIENCE & TECHNOLOGY, 124, B. L. Saha Road, Kolkata – 53 30960820 www.hcgist.org	PH
48	HERITAGE INSTITUTE OF TECHNOLOGY Chowbhaga Road, Anandapur, P.O.-East Kolkata Township, Kolkata– 107 2443 0454/ 56/ 57, (033) Fax: (033) 2443 0455 www.heritageit.edu	CSE, ECE, BT, CH, AEIE/ EIE, IT
49	HOOGHLY ENGINEERING & TECHNOLOGY COLLEGE Vivekananda Road, Pipulpati, P.O.-& Dist.-Hooghly, Pin-712 103 2681 0505/1392, Fax: (033) 26803026 www.hooghlyetcs.org	CSE, ECE, EE, CE
50	IMPS COLLEGE OF ENGINEERING & TECHNOLOGY Nitynandapur, P.O-Chandipur, Dist: Malda, Pin : 732 101. Fax: (03512) 271555 / 278115, (0351) 2278115 impscet.net	CSE, ECE, EE, IT

Sl. No.	Institution Name & Address	Branch
51	INSTITUTE OF ENGINEERING AND MANAGEMENT Y-12, Sector-V, Electronic Complex Salt Lake City, Kolkata – 700 091 (033) 2357 8189/ 2059, (033) 23578302 www.iemcal.com	CSE, ECE, IT
52	INSTITUTE OF PHARMACY Jalpaiguri, P.O.& Dist: Jalpaiguri, Pin - 735 101. (03561) 230057, (0356) 1221884	PH
53	INSTITUTE OF TECHNOLOGY AND MARINE ENGINEERING Jingha, P.o-Anura, Saarikha, Diamond Harbour Road, 24Pgs(S)-743 368, City: 2443 0582 Campus : (03174) 245101/ 078/ 354, (0317) 4245180 www.itmeindia.org	CSE, ECE, IT, MR, BT
54	INSTITUTE OF SCIENCE & TECHNOLOGY Dhurabila, Dhamkuria, Chandrakona Toen, Paschim Medinipur-721201 03225-266644 / 267288, (0322) 5266644 www.iist@ckt.net	CSE, ECE, AEIE/EIE, IT
55	IERCEM INSTITUTE OF INFORMATION TECHNOLOGY Banipur College Road, Banipur, Habra, 24 Pgs.(N), Pin- 743233 (033) 2357-7550-59, Fax- (033) 2357 7735	ECE, AEIE/EIE, CSE, IT
56	INSTITUTE OF ENGINEERING & INDUSTRIAL TECHNOLOGY P.O.- Malandighi, P.S.- Kaksha, Durgapur – 713212 Dist-Burdwan	CSE, ECE, EEE, IT
57	JIS COLLEGE OF ENGINEERING Block “A” Phase III, Kalyani, (Nadia) Pin – 741 235 (033) 2582 2137/ 2856/ 2580 8640, (033) 25808560 www.jisgroup.org www.jisgroup.ac.in	CSE, ECE, IT, BM, EE, AEIE/EIE
58	KANAD INSTITUTE OF ENGINEERING & MANAGEMENT P.O.- Mankar, Dist.- Burdwan, Pin-713144 www.kanadinstitute.org	CSE, ECE, IT, EE
59	MURSHIDABAD COLLEGE OF ENGINEERING & TECHNOLOGY Banjetia, Berhampore, Dist: Murshidabad, Pin: 742 102. (03482) 258145/ 251191, (0348) 2251191 www.mcetbhb.org	CSE, ECE, IT

Sl. No.	Institution Name & Address	Branch
60	MEGHNAD SAHA INSTITUTE OF TECHNOLOGY Nazirabad, P.O-East Kolkata, Kolkata - 107 (033) 2443 1031 Fax:(033) 2443 1032 www.msitcollege.org	CSE, ECE, IT, CE, EE
61	MALLABHUM INSTITUTE OF TECHNOLOGY Braja Radha Nagar P.O. Gosaipur, P.S. – Bishnupur, Bankura-722 122 (03244) 255206/ 07/ 08 City : 2460 5166 / 24406245, (0324) 4255206 www.mitbishnupur.com	CSE, ECE, EE, IT, ME, PE
62	MCKV INSTITUTE OF ENGINEERING 243, G.T.Road(N) Liluah, Howrah -711 204. (033) 2654 9315/ 17, Fax: (033) 26549318 www.mckv.org	CSE, ECE, IT, AE, ME
63	NARULA INSTITUTE OF TECHNOLOGY 81, Nilgunj Road, Agarpara, Pin – 700 019 (033) 2563 8888/ 7777, (033) 25637777 www.nit.ac.in	CSE, ECE, EE, IT, CE
64	NETAJI SUBHAS CHANDRA BOSE INSTITUTE OF PHARMACY Tatla, Chakdaha, Nadia, Pin-741 222 (03473) 329337/207054 Fax: (03473) 247882 www.nscbipe.com	PH
65	NETAJI SUBHAS ENGINEERING COLLEGE (Near Garia Rly. Station), Garia, Kolkata – 152 (033) 2436 3333/ 1285 City: 2226 4396/ 9785, (033) 24361286 www.nsecollege.org	CSE, ECE, EE, IT, BM, AEIE/EIE
66	PAILAN COLLEGE OF MANAGEMENT & TECHNOLOGY Plot 2-6, Sector-I, Phase-I, Bengal Pailan Park, Amgachia Road, Joka, Kolkata-700104 (033) 2453 5605, 2497 8006/07, Fax-2453 5604	CSE, ECE, EEE, IT
67	RCC INSTITUTE OF INFORMATION TECHNOLOGY Canal South Road, Beliaghata,Kolkata- 700 015. (033) 2323 3357/ 3356, 2216 1463 Extn. 44, 41, (033) 23233357 www.rcciit.com	CSE, ECE, IT
68	SILIGURI INSTITUTE OF TECHNOLOGY Hillcard Road, Sukna, Siliguri, Dist: Darjeeling, Pin – 734 225 (0353) 2571074/ 076/ 093/2778004, Fax: (0353) 2778003 www.sitcollege.org	CSE, ECE, EE, IT, AEIE/EIE

Sl. No.	Institution Name & Address	Branch
69	SAROJ MOHAN INSTITUTE OF TECHNOLOGY Vill+P.O.-Guptipara, Dist: Hooghly, Pin: 712 512 (03213) 262806/262719, (0321) 3262856	CSE, ECE, EE, AEIE/EIE, IT, ME
70	ST. THOMAS COLLEGE OF ENGINEERING & TECHNOLOGY 4, Diamond Harbour Road, Kolkata – 700 023 (033) 2448 1081/ 1082, (033) 24482914 www.stcet.org	CSE, ECE, EE, IT
71	SEACOM ENGINEERING COLLEGE Jaladhulgari, PS.-Sankrail, Dist.-Howrah (033) 2679 0481/82/83, Fax: (033) 26790480	CSE, ECE, EE, ME, IT
72	SWAMI VIVEKANANDA INSTITUTE OF SCIENCE & TECHNOLOGY Dakshin Gobindapur, P.S.- Sonarpur, Kolkata – 700145 (033) 2437-9913	CSE, ECE, EEE, ME
73	TECHNO INDIA EM 4/1, Salt Lake City, Sector – V, Kolkata – 91 (033) 2357 5683/ 85, Fax: (033) 23575686 www.ticollege.org	CSE, ECE, EE, FT, IT, AEIE/EIE
74	TECHNO INDIA COLLEGE OF TECHNOLOGY Rajarhat, New Town, Mega City, Kolkata-700 156 (033) 2324 2050, Fax (033) 2324 2090 www.tictcollege.org	CSE, ECE, EE, AEIE/EIE, IT
F. Other Universities / Institutions.		
75	BIDHAN CHANDRA KRISHI VISWA VIDYALAYA P.O.Krishi Viswavidyalaya, Mohanpur, Nadia-741252 (03473) 222657 / 222269 / 222270, (0347) 3222657 www.bckv.edu.in	AG
76	UTTAR BANGA KRISHI VISWAVIDYALAYA P.O.- Pundibari, Dist.- Cooch Behar, Pin. – 736165 (03582) 270948, 09434686155 (M), (0358) 2270143 www.ubkv.ac.in	AG
77	WEST BENGAL UNIVERSITY OF ANIMAL & FISHERY SCIENCES 37/68, Kshudiram Bose Sarani, Kolkata – 37 (033) 2558 0278, 2556 3123, (033) 25571986	DT

N.B. Courses offered :

Abbreviations of different courses and their full names are available in APPENDIX-IV.

With regard to newly affiliated and AICTE approved Engineering Colleges, information may be obtained from the AICTE website (www.aicte.ernet.in) or the website of the Central Selection Committee (E&T), www.csc-et.org.

Branches, Universities/Colleges intake may be seen from the Websites of AICTE/WBUT/Central Selection Committee (E&T) after publication of results of Joint Entrance Examination, 2009.

13.2 **Reservation of seats in B.E. / B. Tech. / B. Pharm. / B. Arch. / B. Agricultural Engineering :**

13.2.1 **Reservation of seats for SC/ST/PC Candidates :**

In **Govt. Engineering/Technology Colleges** of the State as well as in those **Self Financing Private Engineering & Technology Colleges of the State, who have received some grants-in aid from the Government**, reservation of seats for SC/ST/PC candidates shall be governed by the State Govt. Reservation Rules.

For **Self Financing un-aided Private Engineering & Technology Colleges** of the State, reservation of seats under such category is not a mandatory requirement. However, some of such colleges offer seats to reserved category of students at the discretion of the concerned College Authority.

For Universities / University Departments, reservation of seats for SC/ST/PC candidates shall be governed by the concerned University Authorities.

Availability of seats for above said reserved category of students shall finally be declared by the Central Selection Committee (Engineering & Technology).

It is important to be noted that availability of such reserved category of seats are applicable for students of West Bengal only.

13.2.2 **Reservation of seats for students under Defence Quota :**

Few seats in Govt. Engineering & Technology Colleges of the State are reserved for students under such category. Particulars of availability of such seats will be notified by the Central Selection Committee (Engineering & Technology) in due course.

For consideration under **Defence Quota**, candidates will have to apply to the **Rajya Sainik Board, Home Department, Government of West Bengal, Writers' Buildings, Kolkata – 700 001** through the concerned Zila Sainik Board, W.B. (for ex-servicemen) and Units (for Serving Soldiers) in the prescribed form (available with them) with an attested copy of WBJEE Admit Card. Based on the recommendation of the said Rajya Sainik Board, a separate Merit List shall be published by the Joint Entrance Examinations Board for consideration of the Central Selection Committee (Engineering & Technology) for counselling and allotment of seats.

13.2.3 **Reservation of seats for students Merit listed in All India Engineering Entrance Examination(AIEEE), 2009 :**

Seats are available for students merit listed in All India Engineering Entrance Examination (AIEEE), 2009 up-to the extent of 10% of the approved seats in all the existing Self Financing Engineering & Technology Colleges of the State. Allotments of seats shall be strictly on the basis of merit and preference of students through the counselling process conducted by the Central Selection Committee (Engineering & Technology). The eligibility and other criteria as stipulated for JEM – 2009 candidates for admission to degree level Engineering / Technology / Pharmacy /Architecture etc. courses, will also be applicable for AIEEE merit listed candidates.

13.2.4 **Reservation of seats for admission under Management Quota :**

Self Financing Engineering & Technology Colleges of the State offering B.Tech./ B. Pharm. Courses have been allowed to admit student directly by the Concerned Management from intending students fulfilling the required eligibility criteria as may be specified by the State Govt. in the Higher Education Department in this regard. Seats available for such category are maximum 10% of the approved intake. However, final status for availability of such seats shall be notified in due course.

13.2.5 **MHRD Seats**

A few seats are available for students of West Bengal for admission in Engineering & Technology Colleges of other States which are under the jurisdiction of the Ministry of Human Resource Development (MHRD), New Delhi. However, selection of such students shall be on the basis of merit and preference of students in West Bengal Joint Entrance Examination, 2009 through the Central Selection Committee (Engineering & Technology).

Particulars regarding availability of such seats shall be notified in due course.

14. **Selection for Admission :**

Selection for Engineering & Technology courses will be based on the basis of the WBJEE merit / option / with regard to preferences for Colleges/ Universities/ Institutions/ and Branches. Venue, Dates and time will be notified by the Central Selection Committee (Engineering & Technology) in due course. Detailed information will be available from the office of the Central Selection Committee (Engineering & Technology), AQ-13/1, Sector-V, Salt Lake,

Kolkata – 700 091. Ph.No. (033) 2367-1137/1138, Website : www.csc-et.org.

15.0 **Admission to M.B.B.S & B.D.S courses :**

15.1 **Eligibility Criteria for Candidates :**

15.1.1 **Applicant must be citizen of India.**

15.1.2 General Candidates must pass H.S. (10+2) Examination of West Bengal Council of Higher Secondary Education or equivalent examination recognized by the West Bengal University of Health Sciences with individual pass marks in Physics, Chemistry, Biology, English and Vernacular (or any other fifth subject) along with a minimum of 50% marks in Physics, Chemistry and Biology taken together in the said qualifying examination (10+2). In addition, candidates must have to secure at least 50% marks in Physics, Chemistry and Biological Sciences taken together in the Joint Entrance Examination, West Bengal.

In respect of SC, ST candidates the aforesaid marks will be 40% instead of 50% in the qualifying examination (10+2) as well as in the Joint Entrance Examination.

15.1.3 **Age Restriction :** Candidates must be 17 (seventeen) years of age or above as on **31.12.2009**. There is no upper age limit.

N.B. : After examination or admission, if it is found on scrutiny that an applicant is under-age or otherwise ineligible, his/her application for admission will be cancelled even though he /she may have sat for the Joint Entrance Examination and obtained position in the Merit List. Permission to appear at the Joint Entrance Examination or securing of high position by a candidate in the Merit List on the basis

of the said examination does not constitute a guarantee for his/her admission to a Medical College or Dental College unless he/she has fulfilled all the prescribed requirements.

- 15.1.4 **Residential requirements** : For admission to the M.B.B.S. & B.D.S. courses in Govt. and Private Colleges, the candidates must either have been residing in the State of West Bengal continuously at least for 10 (Ten) years as on 31.12.2008 or their parents must be permanent resident of West Bengal having their permanent home address in the State of West Bengal.

Certificate of residence in this respect shall have to be produced in the proforma as printed in the Application Form for JEM-2009 from any of the **Competent Authorities** as given below. The proforma of residential certificate as printed in the form is required to be filled in properly (either 'A' or 'B' as applicable).

The Residential Certificate as applicable (A or B) should be obtained from any of the following competent authorities, viz., [District Magistrate/Additional District Magistrate/Deputy Magistrate /Deputy Collector/ Sub-Divisional Officer/Block Development Officer/ Superintendent of Police or Additional Supdt. of Police/Chief or Additional Chief Metropolitan Magistrate/Director of Scheduled Caste and Tribe Welfare/ Commissioner, Additional Commissioner, Joint Commissioner, Deputy Commissioner of Kolkata Police / Deputy Secretary or above to the Government of West Bengal/Heads of the Institutions (located in West Bengal) where the applicants are presently studying or last studied/Members of Parliament in West Bengal/Members of West Bengal Legislative Assembly/ Sabhapati - Panchayet Samity/Mayor-in-Council-Municipal Corporation/ Municipal Commissioner and Chairman Borough Committee] in whose jurisdiction the candidates reside.

N. B. Total seats allotted for All India Entrance Test will be filled up as per directive of the Supreme Court. For admission to these seats, candidates will have to apply separately to the Central Board of Secondary Education, New Delhi, subsequent to their notification for the purpose. Residential requirement as stated above is also applicable for the reservation of Scheduled Caste and Scheduled Tribe candidates of this State.

There is no separate reservation on All-India basis except in open seats.

- 15.1.5 **Medical Fitness** : Medical certificate be produced during counselling from a Registered Medical Practitioner regarding physical and mental fitness as per proforma provided by Central Selection Committee (Medical). The proforma may be obtained from Central Selection Committee (Medical) against payment of Rs. 20/-.

N.B. : Visual handicapped and hearing disablement are not eligible for preferential admission quota.

- 15.2 **Application form** : One combined application form for admission to M.B.B.S. Course in 10 (ten) Medical Colleges mentioned at 'A' below and for admission to B.D.S. Course in 4 (four) Dental Colleges mentioned at 'B' below will be available after publication of Merit List provided by the 'WBJEE Board' between 11 a.m. and 2 p.m. on working days from Central Selection Committee (Medical) at Medical College Campus, Kolkata and all Medical/Dental Colleges in West Bengal on production of receipted original Treasury Challan of Rs.100/- for application form for admission to M.B.B.S./B.D.S. Course under head of account "0210-Medical and Public Health -03 - Medical Education, Training and Research -105 - Allopathy - 005 - Fees for Joint Entrance Examination - 16 - other Fine etc. For Joint Entrance Examination 2006" on column 8a of T.R. form 7 with the words "prices of the application form for admission to 1st year M.B.B.S./B.D.S. Courses for the Session 2009-2010." Account Code : 0210 03 105 005- 16. Cheques / Drafts / Postal requests will not be entertained.

- 15.3 **Selection :** Selection for M.B.B.S. Course and B.D.S. Course will be based on the Merit List in the Joint Entrance Examination having regard to preferences for Medical or Dental Colleges and subject to passing the qualifying examination appropriately. Counselling will be undertaken for admission in favour of the successful candidates at a fixed venue, date and time to be notified by the concerned authority in this regard.

Selected candidates for both the M.B.B.S. and B.D.S. Course will have to furnish bonds undertaking to serve the State Government anywhere in the State for a minimum period of 3 years after passing.

15.4 **INSTITUTIONS :**

A. M.B.B.S. Course :

1. Medical College Kolkata, 88, College Street, Kolkata – 700 073. Ph. No.(033) 2241-401
2. N.R.S. Medical College, 138, Acharya J. C. Bose Road, Kolkata – 700 014. Ph. No. 2244-3213-16
3. R.G. Kar Medical College, 1, Kshudiram Bose Sarani, Kolkata – 700 004. Ph. No.(033) 2555-7656/75
4. Calcutta National Medical College, 32, Gorachand Road, Kolkata–700 014. Ph. No.(033) 2244-0122
5. Bankura Sammilani Medical College, Bankura – 722 102. Ph. No. (3242) 250981
6. Burdwan Medical College, Burdwan – 713 104. Ph. No. (0342)2558641-45
7. North Bengal Medical College, P.O. Sushrutnagar, Darjeeling – 734 432. Ph. No. (0353) 2585482/83
8. I.P.G.M.E&R., Acharya J.C. Bose Road, Kolkata – 700 020. Ph. No.
9. Midnapur Medical College, Paschim Medinipur. Ph. No. (03222) 274321
10. K.P.C. Medical College & Hospital,1F, Raja Subodh Chandra Mullick Road, Jadavpur, P.O- Jadavpur University, Kolkata – 32. Ph.No. (033) 30016119

B. B.D.S. Course :

1. Dr.R.Ahmed Dental College, 114, Acharya J.C. Bose Road, Kolkata–14. Ph..No.(033) 2246 6876
2. North Bengal Dental College, Sushrutnagar, Darjeeling – 734 432. Ph. No. (0353) 2585248
3. Gurunanak Institute of Dental Science & Research, 157, Nilganj Road, Kolkata, Panihati, Kolkata – 700 114. Ph.No. (033) 2583 9998
4. Haldia Institute of Dental Sciences and Reserch, Haldia, Purba Medinipur – 721 645. Ph. No.(03224) 645704/280110/255662

Total intake shall include reserved seats for Govt. of India, Donors, SC/ST/PC and for All India quota seats as per directive of the Supreme Court. Policy for admission in 10 (ten) Medical Colleges including total intake will be notified by the Appropriate Authority in due course of time.

In case of 4 (four) Dental Colleges, total intake (including reservation, if any) will also be notified by the Appropriate Authority in due course of time.

Other details & Counselling : Details information will be available from the Chairman, Central Selection Committee, Anatomy Building, Medical College, 88, College Street, Kolkata – 700 073 (Phone 2241-4901 to 4905 (Extn.2030).

APPENDIX – 1

WEST BENGAL JOINT ENTRANCE EXAMINATIONS BOARD

SYLLABUS FOR JEM - 2009

PHYSICS

Mechanics & General properties of matter

- (i) Units and dimensions : Units of measurement, system of units, fundamental and derived units, S I units, dimensional analysis.

Methods of measurement: Vernier scale, screw gauge, analysis of errors, significant figures.

- (ii) Scalars and vectors: Addition, subtraction, multiplication of vectors.
- (iii) Kinematics in one, two and three dimensions, projectiles, uniform circular motion, centripetal force, centrifugal force, relative velocity.
- (iv) **Dynamics** : Newton's laws of motion; inertial frames, uniformly accelerated frame (pseudo-forces), conservation of linear momentum, rocket motion, centre of mass, impulsive forces, friction.
- (v) Work, Power and Energy , conservative and non-conservative forces, conservation of energy, collision (elastic and inelastic)
- (vi) Rotational motion : Torque, angular momentum and conservation of angular momentum, moment of inertia, radius of gyration, moment of inertia of objects with simple geometrical shapes, rotational kinetic energy and rolling on horizontal surface.

Gravitation : Laws of gravitation, gravitational field and potential, acceleration due to gravity and its variation, escape velocity, Kepler's laws and planetary motion, motion of satellites, Geostationary orbit.

Elasticity : Hooke's law, elastic moduli, Poisson's ratio, elastic energy.

Hydrostatics and Fluid Mechanics : Pressure in a fluid, Pascal's law, Archimedes' principle, hydraulic press.

Surface energy and surface tension, capillary rise.

Viscosity, streamline and turbulent motion, critical velocity, Reynold's number, Stoke's law, Bernoulli's theorem.

Vibrations : Simple Harmonic Motion, equation of motion, damped and forced vibrations, resonance, superposition of SHM.

Wave motion : Elastic waves, longitudinal and transverse waves. progressive waves, superposition of waves: interference, stationary waves, beats, vibration of strings, air columns, velocity of elastic waves in different media, Doppler effect.

Thermal Physics : Scales of temperature, thermal expansion of solids, liquids and gases, calorimetry, change of state of matter, latent heat, transition temperature, Transmission of heat: conduction, convection, radiation, Black body radiation, absorptive and emissive powers : Kirchoffs law, Wien's law, Stefan's law, Newton's law of cooling, Kinetic theory : mean free path, pressure of an ideal gas, mean and rms velocity of molecules of a gas, kinetic interpretation of temperature, degrees of freedom, equipartition of energy(statement only) — application to monoatomic and diatomic gases.

Thermodynamics : First law of thermodynamics, equivalence of heat and work, intensive and extensive thermodynamic variables, reversible and irreversible processes, specific heats of gases, relation between C_p and C_v .

Optics : Reflection and refraction at plane and spherical surfaces, total internal reflection, thin lenses, power of a lens, combination of lenses and mirrors, deviation and dispersion by prisms.

Simple and compound microscopes, astronomical telescope, human eye: defects and remedies.

Coherent sources, interference of light, Young's double slit.

Electrostatics : Coulomb's law, electric field and potential, flux of electric field, Gauss' law, electric field and potential due to an infinite line charge, charged infinite sheet, solid spheres and spherical shells. Electric dipole and field due to dipole.

Capacitance, spherical and parallel plate capacitors, energy stored in a capacitor, series and parallel combination of capacitors,

Current Electricity : Electric current, drift velocity and mobility, Ohm's law, resistivity, combination of resistances in series and parallel, combination of cells.

Kirchoffs laws, Wheatstone bridge, Metre bridge, potentiometer.

Heating effect of current, thermoelectricity, Seebeck and Peltier effect.

Chemical effect of current, Faraday's law of electrolysis, primary and secondary cells.

Electromagnetism : Magnetic effects of Current, Biot Savart's law, magnetic field due to an infinite line charge, circular coil and solenoid, Ampere's circuital law, Lorentz force, Fleming's left hand rule, force between two current carrying conductors, magnetic moment of a current loop, magnetic dipole, torque experienced by a current carrying coil in a uniform magnetic field, galvanometer, current sensitivity, conversion of galvanometer to voltmeter and ammeter.

Magnetic field of earth, tangent galvanometer, magnetic properties of materials : Dia, para and ferromagnet , permeability, susceptibility.

Electromagnetic induction : Magnetic flux, Faraday's laws of electromagnetic induction, Lenz's law, self and mutual induction, , Flemings right hand rule, Alternating current, peak and rms value of alternating current; generator, D.C. motor and transformer

Qualitative idea of electromagnetic wave and its spectrum.

Modern Physics : Bohr's atomic model for hydrogen like atom, hydrogen spectrum, x-ray emission, Moseley's law, wave particle duality, de Broglie's hypothesis, photo-electric effect.

Constituents of atoms, isotopes, mass defect, mass-energy equivalence, binding energy. radioactivity - α , β , γ radiation, half life, mean life, fission, fusion.

Energy bands in solids, intrinsic and doped semiconductors, p-n junction diode, rectifier, pnp and npn transistors, common emitter characteristics.

Binary number, AND, OR, NOT, NAND and NOR gates.

MATHEMATICS

Algebra

A.P., G.P., H.P. :Definitions of A. P. and G.P.; General term; Summation of first n-terms; A.M.and G.M.; Definitions of H.P. (only 3 terms) and H.M.; Finite arithmetico-geometric series.

Logarithms :Definition; General properties; Change of base.

Complex Numbers: Definition and properties of complex numbers; Complex conjugate; Triangle inequality; Square root of complex numbers; Cube roots of unity; D'Moivre's theorem (statement only) and its elementary applications.

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 (a,b,c are rational 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 co-efficients.

Infinite series : Binomial theorem for negative and fractional index. Infinite G.P. series, Exponential and Logarithmic series with range of validity (statement only), simple applications.

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. Nonsingular 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.

Probability : Classical definition, addition rule, conditional probability and Bayes' theorem, independence, multiplication rule.

Trigonometry

Trigonometric ratios, compound angles, multiple and submultiple angles, general solution of trigonometric equations. Properties of triangles, inverse trigonometric functions.

Co-ordinate geometry of two dimensions

Basic Ideas : Distance formula, section formula, area of a triangle, condition of collinearity of three points in a plane.

Polar coordinates, transformation from Cartesian to polar coordinates and vice versa. Parallel transformation of axes, concept of locus, elementary locus problems.

Straight line : 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.

Circle : 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 . Parametric equation of a circle. Intersection of a line with a circle. Equation of common chord of two intersecting circles.

Conics : Definition, Directrix, Focus and Eccentricity, classification based on eccentricity.

Parabola :Standard equation. Reduction of the form $x = ay^2+by+c$ or $y = ax^2+bx+c$ to the standard form $y^2 = 4ax$ or $x^2 = 4ay$ respectively. Elementary properties and parametric equation of a parabola.

Ellipse and Hyperbola : Reduction to standard form of general equation of second degree when xy term is absent. Conjugate hyperbola. Simple properties. Parametric equations. Location of a point with respect to a conic.

Differential calculus : Functions, composition of two functions and inverse of a function, limit, continuity, derivative, chain rule, derivatives of implicit functions and of functions defined parametrically.

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 : **Formulation and solution of differential equations of the forms.**

- 1) $dy / dx = f(x).g(y)$
- 2) $dy / dx = f(y/x)$
- 3) $dy / dx = (ax+by) / (cx+dy)$
- 4) $dy / dx = (a_1x+b_1y+c_1) / (a_2x+b_2y+c_2)$, $(a_1/a_2 = b_1/b_2)$
- 5) $dy / dx + p(x)y = Q(x)$
- 6) $d^2y / dx^2 + p_1 dy/dx + p_2y = 0$ with p_1 and p_2 constants.
- 7) $d^2y/dx^2 = f(x)$

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.

BIOLOGICAL SCIENCES

Unit of Life : Definition of life, Cell as the basic unit of life. Cell theory, Prokaryotic and Eukaryotic cell – structure and differences.

Ultrastructure and functions of cellular components : Cell wall, Plasma membrane, Plastid, Endoplasmic reticulum, Golgi bodies, Mitochondria, Ribosomes, Lysosomes, Nucleus, Centrosomes, Cilia, Flagella.

Microscopy : Components and principles of Simple and Compound Microscope;

Electron Microscope : Basic functional principles.

Physical and Chemical principles involved in maintenance of life processes : Diffusion, Osmosis, Absorption, Osmoregulation.

Biomolecules : Classification and structural properties of carbohydrates, lipids, aminoacids, proteins and nucleic acids.

Carbohydrates : Monosaccharides, digosaccharides, and polysaccharides (starch, glycogen, cellulose).

Proteins : Simple (albumins, globulins, collagen) and conjugated proteins (only examples).

Nucleic acids : Structure of DNA, RNA, types of RNA.

Enzymes : Definition & properties, Examples; Mechanism of Action, Allosterism and Regulation.

Chromosomes and Cell Division : Morphology of chromosomes; Euchromatin and Heterochromatin.

Nucleic acid as genetic material (Examples : Bacterial Transformation and Viral Transduction).

Brief idea of Polytene Chromosomes : Cell cycle and phases (excluding control mechanism). Characters of malignant cell; Process & significance of Meiosis.

Genetics : Laws of Heredity : (Monohybrid and dihybrid crosses; Mendel's laws). Back cross, Test cross, Linkage, Crossing over, Sex linked inheritance – Colour blindness, Haemophilia.

Mutation – Definition and Types; Replication of DNA, Transcription and Translation (Brief idea).

Origin, Evolution and Diversity of Life : Haldane and Oparin's concept on origin of life. Modern concept of Natural selection, Biological Species concept.

Human evolution – An outline.

Taxonomy and Classification : Definition; Importance of Taxonomy, Binomial Nomenclature, Law of Priority (Homonym & Synonym).

Concept of Biodiversity : Definition of Biodiversity ; Genetic diversity; Species diversity and Ecosystem diversity. Five kingdom classification (only distinct characters).Salient features of major animal phyla with common examples, classification of Chordates (up to Sub Class) with distinctive characters only.

Population Biology : Concept of population growth (logistic and exponential) and population control.

Ecosystem : Concept of ecosystem and Biosphere, Wetland.

Brief idea of Ecological pyramids, Energy flow, Biogeochemical cycle (concept only).

Environmental Pollution : Air, water and noise pollution – sources effects and probable control strategies; Biomagnification and Bioaccumulation. Cause of Dyslexia, Minamata and Etai etai diseases. Green house effect, BOD, COD, Acid rain and Ozone hole.

Virus and Bacteria : Morphological characteristics of Bacteriophage (T2),Plant virus (TMV);Animal virus (influenza), Bacterial cell (E. coli).

Staining : Gram staining for bacteria.

Biotechnological application of microbes : (a)Agricultural – *Rhizobium* and other Nitrogen fixing bacteria, Biofertilizers and Bio-pesticides ; (b) Industrial – Production of curd; tanning and brewery; synthesis of antibiotics, vitamin. (c) Cloning of microbial genes.

Tissue and tissue system : (a)Plant Tissues–Meristematic and permanent (types with characterization and function). (b)Animal Tissue – outline classification and examples.

Functions of life :

Photosynthesis :

Major photosynthetic pigments, outline concept of light and dark reaction phases, basic idea of bacterial photosynthesis, C₂, C₃, C₄ pathways, CAM (in brief), photorespiration.

Respiratory System :

- (a) Definition of respiration, Mechanisms of glycolysis, Kreb's cycle (Flow chart only; calculation for ATP, CO₂ & H₂O) ; Outline idea of Electron Transport system, Relationships of photosynthesis and respiration.
(b) Respiratory system in human : Respiratory tract, Mechanism of breathing, Role of intercostals muscles and diaphragm;

Significance of physiological and anatomical dead space.

Tidal volume, inspiratory and expiratory reserve volumes, residual volume, vital capacity. Composition of inspired, expired and alveolar air. Common respiratory diseases – definition and causes – Asthma, Tuberculosis, Hypoxia, Anoxia, Apnoea, Dyspnoea.

Cardiovascular System & Blood :

Anatomy of Heart – junctional tissues of the heart; origin and propagation of cardiac impulse. Histological structures of arteries, veins and capillaries.

Cardiac cycle – Atrial and ventricular events only; cardiac cycle time, Heart sound.

Cardiac output – definition, Stroke and Minutes volume.

Blood Pressure : factors controlling & measurement.

Blood – Composition and functions of blood.

Blood coagulation and anticoagulants, Blood group and Rh factor, Blood Transfusion, Lymph and tissue fluid formation and functions, Portal circulation.

Nutrition and Digestive System : Basic constituents of food and their nutritional significance. Vitamins – dietary sources, functions and deficiency symptoms of water and fat soluble vitamins. Structure and functions of the alimentary canal and the digestive glands. Functions of the digestive juices (saliva, gastric juice, pancreatic juice, intestinal juice), Biles.

Digestion and absorption of carbohydrates, lipids and proteins. Diseases – Peptic and Gastric ulcers, Gastritis; fasting and obesity.

Metabolism : Definition; B.M.R. – Controlling factors; elementary idea of metabolic pathways; glycogenesis, glycogenolysis, gluconeogenesis, Oxidation of fatty acids, Ketone body formation and its significance.

Deamination, Transamination and Decarboxylation of aminoacids (definition only).

Excretory System : Histology and function of the nephron (brief idea)

Normal and abnormal constituents of urine.

Nervous and Muscular system : Brief outline of human brain structure.

Cranial Nerves : Distribution and Function. Spinal cord – Structure and major functions, Reflex arc (types) and reflex action : Conditional and unconditional reflexes.

Autonomic : sympathetic and parasympathetic (definition only) nervous system.

Synapse : Structure and mechanism of synaptic transmission.

Different types of muscles and their structure, properties of muscles

(i) Excitability (ii) Contractility (iii) All or none law (iv) Refractory period (v) Summation of stimuli (vi) Tetanus (vii) Rigor mortis; Mechanism of muscle contraction.

Endocrine System and animal hormones :

Definition of endocrine glands and hormones, functions of hormones released from (i) pituitary (ii) thyroid (iii) pancreas (iv) adrenal (v) gastrointestinal gland, An outline mechanism of action of protein & steroid hormones.

Causes and symptoms of Acromegaly, Diabetes insipidus, Diabetes mellitus, Goiter, Cushing's disease.

Growth, Reproduction, and Ageing :

A. In Plants :

Different parts of a typical flower (China rose). Types of flower : regular and irregular, actinomorphic, zygomorphic. Aestivation in Musaceae & Malvaceae. Floral formula : Definition, symbols used in floral formulae in Musaceae (e.g. Banana) and Malvaceae (eg. China rose) ; Pollination – Definition, self and cross pollination; Merits and demerits of self and cross pollination. Fertilization – Process of double fertilization. Dispersal of fruits and seeds – Types with examples. Phases and factors of Growth, Differences between growth and development, Abscission senescence, ageing and growth of seeding and the role of gibberellic acid.

B. In Animals :

Primary and secondary sex organs and secondary sex characters – Testis – Histology, Functions of Testosterone. Spermatogenesis (outline). Ovary – Histology : Functions of estrogen and progesterone; Oogenesis (outline); structure of mature Graafian follicle.

Menstrual cycle (brief idea). Fertilization and Implantation.

Immunology : A brief idea of antigen and antibody. Elementary knowledge of inherited, acquired, humoral, cell mediated immunity. Active and passive immunity. Prevention of AIDS and Hepatitis B.

Medical, Agricultural and Economic Zoology:

A. Outline idea of diseases, their causative organism, mode of infection, symptoms and preventive measures of :

- (i) Malaria
- (ii) Filariasis
- (iii) Ascariasis

Distinguishing features of Culex, Anopheles and Aedes

Life cycle and comparative study of Culex and Anopheles;

Causative agents of encephalitis and kalaazar and control of their vectors.

B. Characteristic features of major and minor carps and examples of exotic carps. Mechanism of induced breeding – hypophysation.

Composite culture of carps, common diseases of carp – Gillrot, fin rot and Dropsy.

Definition of pest, Damage symptoms and control of *Scirpophaga incertulus* and *Leptocorisa acuta*.

C. Poultry – Types of poultry birds ; high yielding varieties of poultry birds. Species of honey bees in India and different castes in a colony. Composition and uses of honey.

Chemical composition of silk, types of silk and silk worms.

Life cycles of mulberry silk worm. Structure of silk gland.

Symptoms of Flacherie, Muscardine, Grassarie and Pebrine.

Application of Biology :

Pesticides and Biological Pest Control – Benefit and hazards, Basic principles of *ex situ* and *in situ* conservation. Red Data Book, Green Data Book.

Role of phytohormones in horticulture and agriculture.

Hybridization in plants – Definition and techniques.

Idea about plant cell and tissue culture – Micropropagation.

Principles and application of transgenic plants and animal, Test tube baby.

Biomedical Engineering :

Application - ECG & EEG

Imaging – USG, CT Scan, X-ray, MRI

Therapeutic - Pacemaker, Dialyzer.

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 $E = h\nu$); Bohr's model of hydrogen atom and its limitations, Sommerfelds 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.

Uncertainty principle; The concept of atomic orbitals, shapes of *s*, *p* and *d* orbitals (pictorial approach)

Radioactivity and Nuclear Chemistry

Radioactivity – α -, β -, γ -rays and their properties; Artificial transmutation; Rate of radioactive decay, decay constant, half-life and average 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); Fajan's 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.

Double salts and complex salts, co-ordination compounds (examples only), co-ordination number (examples of co-ordination number 4 and 6 only).

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 Waal's 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 (ΔE) and Enthalpy change (ΔH) in a chemical reaction. Hess's Law and its applications (Numerical problems). Heat of reaction, fusion and vapourization; Second law of thermodynamics; Entropy; Free energy; Criterion of spontaneity.

Chemical Equilibria – The Law of mass action, dynamic nature of chemical equilibria. Equilibrium constants, Le Chatelier's Principle. Equilibrium constants of gaseous reactions (K_p and K_c) and relation between them (examples). Significance of ΔG and ΔG° .

Chemical Dynamics – Factors affecting the rate of chemical reactions (concentration, pressure, temperature, catalyst). 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).

Solubility and Solubility Products.

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°), Electrochemical series, feasibility of a redox reaction.

Significance of Gibb's equation : $\Delta G^\circ = -nF\Delta E^\circ$ (without derivation), no numerical problems.

Redox titrations with (examples); Nernst equations (Numerical problems).

Chemistry of Non-metallic Elements and their Compounds

Carbon – occurrence, isotopes, allotropes (graphite, diamond, fullerene); CO and CO₂ production, properties and uses.

Nitrogen and Phosphorus – occurrence, isotopes, allotropes, isolation from natural sources and purification, reactivity of the free elements. Preparation, properties, reactions of NH₃, PH₃, NO, NO₂, HNO₂, HNO₃, P₄O₁₀, H₃PO₃ and H₃PO₄.

Oxygen and Sulfur – 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).

Halogen

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.

Chemistry in Industry

Large scale production (including physicochemical principles where applicable omitting technical details and uses of individual items).

Heavy Chemicals : Sulfuric acid (contact process), Ammonia (Haber's process), Nitric acid (Ostwald's process), sodium bi-carbonate and sodium carbonate (Solvey process).

Polymers, Polythene, Nylon-66, rubber from natural source, vulcanization.

Electrochemicals – sodium hydroxide, chlorine, bleaching powder as by-products.

Fuel Gases – LPG, CNG.

Silicon carbide and silicones.

Environmental Chemistry

Common modes of pollution of air, water and soil. Ozone layer, ozone hole – important chemical reactions. Green House effect; Smog; Pollution of water by domestic and industrial effluents; Pollutants–pesticides, fertilizers and plastics.

Chemistry of Carbon Compounds

Hybridization of carbon – σ - and π -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 β -dicarbonyl compounds, acidity and basicity of simple organic compounds.

Aliphatic Compounds

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

Alkenes and Alkynes – Preparation by elimination of alcohols, alkyl halides and quaternary ammonium hydroxides, Saytzeff and Hofmann rules; Reactions – electrophilic addition of X_2 , HX , HOX , H_2O ($X = \text{halogen}$), ozonolysis, epoxidation and oxidation with $KMnO_4$, OsO_4 (stereochemistry of addition excluded).

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.

Alkyl halides – 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).

Alcohols – Preparation 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°, 2° and 3° 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.

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 – Nucleophilic substitution, cine substitution (excluding mechanism).

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 noninterfering Acid and Basic Radicals by dry and wet tests from among :

(a) Acid Radicals : Cl^- , S^{2-} , SO_4^{2-} , NO_3^- , CO_3^{2-}

(b) 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 - II

Guideline for filling in the Application Form

The applicant is required

- i) To go through the Information Brouchure very carefully and to get acquainted with all the requirements
- ii) To satisfy eligibility and other criteria in order to appear in the examination.
- iii) To ensure that while filling in the Application Form in English Capital Letters, proper care is taken to the fact that one letter is written clearly within one box only and there is no overlapping in any case.
- iv) To send the Application Form complete in all respect through Speed Post within prescribed date mentioned in the Information Brouchure.
- v) To write complete permanent address with postal pin code and Police Station in the Application Form in own hand writing in CAPITAL LETTERS in English only using Black Ball Pen/Gel Pen for darkening the appropriate circles also.
- vi) Overwriting, cuttings, erasing in the Application Form and incomplete Application Form may lead to rejection of the Form. Any error arising on this account shall be the responsibility of the candidates.
- vii) The Application Form duly filled in should be sent to the **Member Secretary,** **West Bengal Joint Entrance Examinations Board, AQ-13/1, Sector-V, Salt Lake, Kolkata – 700 091** in the printed envelop supplied with the Application Kit through **Speed Post** only so as to reach positively by 14.01.2009.

No Application Form will be received by hand or through other agencies.

Forms received after the last date will not be processed.
- viii) **The candidates must retain photocopy of his/her filled in Application Form positively.**
- ix) If a candidate submits more than one Application Form without due intimation to the Authority, his/her candidature shall be liable to be cancelled.

Filling in of the Application form

For Sl.No. 1) Candidate should write his/her Name in CAPITAL LETTERS as given in Madhyamik or equivalent Examinatin (10th standard).

Example :- Suppose candidate's name is VIJAY KUMAR DAS

First Name

V	I	J	A	Y		
---	---	---	---	---	--	--

Middle Name

K	U	M	A	R		
---	---	---	---	---	--	--

Last Name

D	A	S				
---	---	---	--	--	--	--

Sl. No. 2a) candidate should write his/her Father's name / Mother's name / or **Guardian's name (**If parents are not alive) in capital letters: One Box should be left blank between each part of the name

Example – suppose candidate's Father's name is

SUJOY KANTIDAS

S	U	J	O	Y		K	A	N	T	I		D	A	S
---	---	---	---	---	--	---	---	---	---	---	--	---	---	---

Sl.No.2b) Candidate should mention the relationship with the person indicated at Sl.No.2a)

Example – if the relationship is Father

F	A	T	H	E	R	
---	---	---	---	---	---	--

Sl.No.3 – Write complete permanent address in capital letters including the name of the Police Station and postal pin code.

Sl.no. 4 – The candidate should paste his/her recent colour photograph (2.5 cm X 3.5 cm) with white background inscribing name of the candidate and date of photograph in the box provided which should not be attested, stapled or pinned. The form No. and name should be written on the reverse side of the photograph. The photograph should be pasted with gum in such a manner that the adhesive does not overflow.

Sl.No.-5 –Write date, month and year of your Date of Birth in the appropriate boxes use numbers 1- to 31 for the date 1 to 12 for the month and last two digits for the year of birth.

Example : - Suppose Date of Birth is 10th January 1990

Date	Month	Year						
<table border="1" style="display: inline-table;"><tr><td>1</td><td>0</td></tr></table>	1	0	<table border="1" style="display: inline-table;"><tr><td>0</td><td>1</td></tr></table>	0	1	<table border="1" style="display: inline-table;"><tr><td>9</td><td>0</td></tr></table>	9	0
1	0							
0	1							
9	0							

Sl.No.-6- The candidate should write in capital letters religion, he/she belongs to.

Sl.No.-7- The candidate should darken the appropriate circle with black ball point/gel pen only.

Sl.No.- 8- The candidate, if physically challenged should darken the circle against 'yes' and if not against 'No.'

Sl.No.-9- The candidate should write the district code on the boxes provided. (for district code see **APPENDIX – IV** of the information Brochure).

Sl.No.10- The candidate should darken the appropriate circle in respect of the State he/she belongs to.

Sl.No.-(12) and (13)- The candidate should write his/her Nationality and Mother tongue in the appropriate boxes in capital letters.

Sl.No.14- The candidate should darken the appropriate circle regarding his/her No. of attempt(s) of West Bengal Joint Entrance Examination.

S.No.15- The candidate should put his/her full signature (Not in capital letters) at the box provided.

Sl.No-16a) The candidate should write Name and Address of the School/Institution from where he/she passed or appeared in H.S.(10+2)/equivalent examination along with telephone No. of the concerned School/Institution (with STD code) and postal pin code of the place where the School/Institution is situated.

Sl.No.16b)- Write name and address of the School/Institution from where the candidate passed the Madhyamik or equivalent examination (10th standard) along with telephone No. of the concerned School/Institution (with STD code) and postal pin code of the place where the School/Institution is situated.

Sl.No-17 The candidate should darken the appropriate circles in respect of the postal pin code of his/her permanent address as written in Sl.No.(3). See the filled in sample copy of the application form (Sl.No.-17).

Sl.No18a) The candidate should write the name of the Board/Council which conducted the H.S.(10+2)/ equivalent examination he/she passed/appeared. He/she should also write his/her Roll No. of the concerned examination in the appropriate boxes.

Sl.No –18b) The candidate should write the name of the Board/Council which conducted the Madhyamik/ equivalent examination (10th standard) which he/she has passed and he/she should also write the Roll No. of the concerned examination in the appropriate boxes.

Sl.No. 19A) & B)- Candidates desirous of seeking admission to Govt. Engineering / Technology Colleges, Govt. Medical / Dental Colleges as well as to Private Medical and Dental Colleges should furnish Domicile Certificate either 'A' or 'B' (as applicable) by one of the competent authorities as mentioned in the Information Brouchure Vide Clause No.3.3.

The candidate should also paste his/her recent colour photograph (2.5 cm X 3.5 cm) with white background inscribing Name of the candidate and date of photograph in the appropriate box either in 'A' or in 'B' (as applicable) which should not be attested, stapled or pinned.

The photograph should be pasted with gum in such a manner that the adhesive does not overflow.

Sl.No.20- The candidate should read the statement in the form of declaration mentioned at a) and b) carefully and then put his/her full signature in the appropriate place mentioning date and place, the declaration should also be countersigned by his/her Father/Mother/*Guardian (* in case parents are not alive) mentioning place and date.

Sl.No-21a) The candidate should put his/her left thumb impression (LTI) in blue or black indelible ink in the space provided.

21 b) The candidate should put his/her full signature (not in capital letters) in the appropriate box.

21c) Father/Mother/*Guardian (*in case parents are not alive) of the candidate should put his/her Signature (not in capital letters) in the appropriate box.

Sl.No.- 22) Not to be filled in while filling in the applicable form.

Sl.No-23) The candidate should paste his/her recent colour photograph (2.5 cm X 3.5 cm) with white background inscribing name of the candidate and date of photograph in the box provided which should not be attested, stapled or pinned. The form No. and name should be written on the reverse side of the photograph. The photograph should be pasted with gum in such a manner that the adhesive does not overflow.

The candidate should also put his/her full signature (not in capital letters) in the box provided.

Sl.No.24a)-The candidate should write his/her name and full mailing address with postal pin code in the appropriate place in his/her own hand writing.

The candidate should paste his/her recent colour photograph (2.5 cm X 3.5 cm) with white background inscribing name of the candidate and date of photograph in the box provided which should not be attested, stapled or pinned. The form No. and name should be written on the reverse side of the photograph. The photograph should be pasted with gum in such a manner that the adhesive does not overflow.

Sl.No-25 - The candidate should put his/her left thumb impression (LTI) using blue or black indelible ink in the space provided.

He/She also has to write his/her full name (not in capital letters) in the space provided.

Form No

1 0 0 3 4 8

SIDE 2

19. Domicile Certificate

Certificate of residence signed by competent authority to be furnished (Either A or B) by candidate seeking admission to MBBS / BDS course and / or to any of the degree level Engineering / Technological / B.Pharm courses in Govt.Engineering & Technological Colleges.

A. Certificate of the residence to be furnished by candidate residing in WB continuously for 10 years or more as on 31.12.2008.

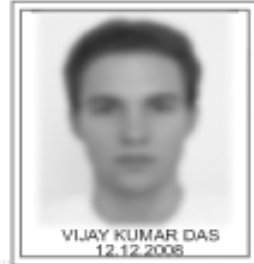
Certified that _____ son / daughter of _____
_____ is a resident of Village / House No. _____

And street _____ Post Office _____
_____ Police Station _____ in the district of _____ under assembly
constituency _____ has been living in the state of West Bengal continuously / uninterrupted for
for last (10) years as on 31.12.2008.

Date: _____
Place: _____ Signature of Certifying Authority _____

Full name (in block letters) _____
Address in full _____
_____ Designation with official seal _____
Telephone No. _____

For Competent Authorities See Information Brochure of JEM 09



OR

B. Certificate of the residence to be furnished by candidate residing in WB for less than 10 years as on 31.12.2008 but whose parents are permanent resident of WB.

Certified that _____ father / mother of the candidate _____
_____ is a permanent resident of West Bengal
having their permanent residential address at Village / House No. and street _____
Post office _____ Police Station _____ in the district of _____
_____ Under assembly constituency _____

Date: _____
Place: _____ Signature of Certifying Authority _____
_____ Designation with official seal _____

Full Name (in block letters) _____
Address in full _____
_____ Telephone No. _____

For Competent Authorities See Information Brochure of JEM 09



20. Declaration by the Candidate

- a) I have gone through the rules and regulations, eligibility and other criteria mentioned in the Information Brochure of JEM-2009 very carefully and I declare that I fulfill all the prescribed conditions of eligibility for admission to the course(s) of study applied for.
- b) I do hereby further declare without prejudice that all statements / information given in the application form are true and complete to the best of my knowledge and belief. In the event of my ineligibility being detected before or after the examination or selection, appropriate action can be taken against me, as deemed fit, by the West Bengal Joint Entrance Examinations Board / Central Selection Committee / concerned college or University and my candidature for admission to any course of study will be outright cancelled at any stage without any clarification whatsoever.

Sujay Kanti Das
Counter signature of Father / Mother / Guardian*
(*In case parents are not alive)

Place: K O L K A T A
Date: 1 2 . 1 2 . 2 0 0 8

Vijay Kumar Das
Full Signature of the candidate
(Not in capital letters)

Place: K O L K A T A
Date: 1 2 . 1 2 . 2 0 0 8

21. LEFT THUMB IMPRESSION AND SIGNATURE

21 a)

Left Thumb
Impression
of the
candidate



21 b)

Vijay Kumar Das
Full Signature of the candidate (Not in capital letters)

21 c)

Sujay Kanti Das
Signature of Father / Mother / Guardian* (*In case parents are not alive)

22 For Office Use Only
(To be filled in during Examination)

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Subject Name		Question Booklet No.
Mathematics 9:30 am TO 11:30 am SUNDAY	Full Signature of the Candidate During Examination <i>(Not in Capital Letter)</i> <hr/> Signature of Invigilator Verified Signature of B.R	a) MCQ Type (80%) <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Physics & Chemistry 12:30pm TO 2:30 pm SUNDAY	Full Signature of the Candidate During Examination <i>(Not in Capital Letter)</i> <hr/> Signature of Invigilator Verified Signature of B.R	MCQ Type (80%) <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Biological Sciences 3:30 pm TO 5:30 pm SUNDAY	Full Signature of the Candidate During Examination <i>(Not in Capital Letter)</i> <hr/> Signature of Invigilator Verified Signature of B.R	MCQ Type (80%) <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

Enrolment No.

1 0 0 3 4 8

23 For Candidate's Use
(at the time of filling in of the application form)



Vijay Kumar Das

Full Signature of the candidate
(Not in Capital Letter)

24 a) NAME AND FULL MAILING ADDRESS (Must be written by candidate's own hand writing)

VIJAY KUMAR DAS	
1/16 B. RABINDRANATH TAGORE ROAD	
KOLKATA	
Pincode	7 0 0 0 3 4

Enrolment No.

1 0 0 3 4 8



Vijay Kumar Das

Full Signature of the candidate (Not in Capital Letter)

24 a) NAME AND FULL MAILING ADDRESS (Must be written by candidate's own hand writing)

VIJAY KUMAR DAS	
1/16 B. RABINDRANATH TAGORE ROAD	
KOLKATA	
Pincode	7 0 0 0 3 4

Enrolment No.

1 0 0 3 4 8



Vijay Kumar Das

Full Signature of the candidate (Not in Capital Letter)

West Bengal Joint Entrance Examinations Board

AQ13/1, Sector V Salt Lake, Kolkata - 700091

	DATE	TIME	SUBJECT
EXAMINATION SCHEDULE	19.04.2009 SUNDAY	9:30 TO 11:30 am	Mathematics (100 marks)
	19.04.2009 SUNDAY	12:30 TO 2:30 pm	Physics & Chemistry (50 marks + 50 marks)
	19.04.2009 SUNDAY	3:30 TO 5:30 pm	Biological Sciences (100 marks)

25

Left Thumb Impression of the candidate at the time of filling in of the application form



Vijay Kumar Das

Full Name of the candidate (Not in capital letter)
To be written while filling in of the application form

SPACE FOR OFFICE USE

West Bengal Joint Entrance Examinations Board

AQ13/1, Sector V Salt Lake, Kolkata - 700091

EXAMINATION SCHEDULE

DATE	TIME	SUBJECT
19.04.2009 SUNDAY	9:30 am TO 11:30 am	Mathematics (100 marks)
19.04.2009 SUNDAY	12:30pm TO 2:30 pm	Physics & Chemistry (50 + 50 = 100 marks)
19.04.2009	3:30 pm TO 5:30 pm	Biological Sciences

ADMIT CARD JEM 2009

INTRODUCTION FOR THE CANDIDATE

1. Candidates will be allowed to enter the examination hall 15 minutes before the start of each session of Examination.
2. Candidates have to bring with them (a) Black Gel / Ball Point Pen (b) Admit Card (JEM 2009) (c) Admit Card HS (10 + 2) or of 10th standard/ equivalent examination.
3. Calculators, Mobile Phones, Log tables, Electronic Watches, any other electronic gadgets or any equipment with facilities of calculator and spare papers, textual materials, printed or written chits or paper are not allowed inside the examination hall.
4. If a candidate is found impersonating, his/her candidature will be cancelled outright and the concerned candidate will be handed over to the POLICE.
5. No candidate without the permission of the center-in-charge or the concerned invigilator will be allowed to leave his/her seat or examination hall without handing over the OMR Answer Sheet and Answer Booklet to the invigilator on duty.
6. The admit card must be shown to the persons conducting / supervising the examination as and when asked for.
7. Candidate without Admit Card or Candidate with Admit Card having mutilated / distorted / soiled photograph will be not allowed to sit for the examination.
8. Violation of examination norms in any form inside the examination hall including failure to submit OMR Answer Sheet and Answer Booklet to the invigilator will lead to cancellation of the candidature.
9. Candidature of an ineligible candidate will be liable for cancellation at any stage.
10. Results will be declared by 15 June 2009.

West Bengal Joint Entrance Examinations Board

AQ13/1, Sector V Salt Lake, Kolkata - 700091

EXAMINATION SCHEDULE

DATE	TIME	SUBJECT
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6. The admit card must be shown to the persons conducting / supervising the examination as and when asked for.
7. Candidate without Admit Card or Candidate with Admit Card having mutilated / distorted / soiled photograph will be not allowed to sit for the examination.
8. Violation of examination norms in any form inside the examination hall including failure to submit OMR Answer Sheet and Answer Booklet to the invigilator will lead to cancellation of the candidature.
9. Candidature of an ineligible candidate will be liable for cancellation at any stage.
10. Results will be declared by 15 June 2009.

APPENDIX – III

Procedure to be followed in the conduct of Examination :

1. The Examination Hall will be opened 15 minutes before the commencement of the test. Candidates are expected to take their seats immediately after the opening of Examination Hall. If the candidates do not report in time, they are likely to miss some of the general instructions to be announced in the Examination Hall.
2. After occupying their seats they must write their Names, Enrolment no., Index no. and Question Booklet no. at appropriate place on OMR Sheet and Answer Booklet.
3. Candidate must bring with them i) Admit card (JEM 2009), ii) Admit card (H.S. or equivalent/Madhyamik [10th std.] or equivalent examination), iii) Black/Blue Ball Point /Black Gel Pen.
4. Candidates must show on demand the Admit Card (JEM 2009) for admission to the Examination Hall. A candidate who does not possess the Admit Card issued by the Board shall not be admitted to the Examination Hall by the Center-in-Charge.
5. A seat indicating Index Number will be allocated to each candidate. Candidates must find out and occupy their allotted seats.
6. Candidates are not allowed to carry any textual material, printed or written, bits of papers or any other material except those listed under Sl.No.-3 inside Examination Hall.
7. Calculators, Slide Rules, Log Tables, Electronic Watches with facilities of Calculator, Cellular Phones, Pagers are not allowed in the Examination Hall. Possession of such devices during the Examinations may lead to cancellation of the paper besides seizing of the same.
8. No candidate, without the special permission of the Centre-in-Charge or the invigilator concerned, will leave his/her seat or Examination Hall until the duration of examination for a paper is over. Candidates should not leave the hall without handing over their OMR sheet and Answer Booklet to the invigilator on duty.
9. Candidates shall maintain silence and attend to their question paper only. Any conversation or gesticulation or disturbance in the examination hall shall be deemed as misbehavior. If a candidate is found adopting unfair means, his/her candidature shall be cancelled and he/she will be liable to be debarred from taking examination either permanently or for a period according to the nature of offence.

If a candidate is found impersonating, his/her candidature will be cancelled outright and the concerned examinee will be handed over to the Police.

APPENDIX – IV

West Bengal :

Code	District (West Bengal)	Code	District (West Bengal)	Code	District (West Bengal)
71	Bankura	78	Hooghly	85	Murshidabad
72	Birbhum	79	Howrah	86	Nadia
73	Burdwan	80	Jalpaiguri	87	Purulia
74	Coochbehar	81	Kolkata	88	24 Parganas North
75	Darjeeling	82	Malda	89	24 Parganas South
76	Dinajpur Dakshin	83	Medinipur Paschim		
77	Dinajpur Uttar	84	Medinipur Purba		

Other States :

Code	District (Other States)
90	Districts in Tripura
91	Districts in Other States

APPENDIX – V

Abbreviation of the branches (Engg./Tech./Pharm./Arch.) and their full names :

Sl. No.	Full Name of the Course	Abbreviation	Sl. No.	Full Name of the Course	Abbreviation
1	Aerospace Engineering	ASE	17	Electronics & Communication Engineering/ Electronics and Telecommunication Engg.	ECE/ETC
2	Agricultural Engineering	AG			
3	Applied Electronics / Electronics Instrumentation Engineering	AEIE/EIE			
4	Architecture	AR	18	Electrical & Electronics Engineering	EEE
5	Automobile Engineering	AE	19	Food Technology	FT
6	Apparel Production Management	APM	20	Information Technology	IT
			21	Jute Technology	JT
7	Bio-Medical Engineering	BM	22	Jute & Fiber Technology	JF
8	Bio-Technology	BT	23	Leather Technology	LT
9	Ceramic Technology	CT	24	Marine Engineering	MR
10	Chemical Engineering	CH	25	Mechanical Engineering	ME
11	Civil Engineering	CE	26	Metallurgical Engineering	MT
12	Computer Sc. & Engineering/ Computer Sc. & Technology	CSE/CST	27	Mining Engineering	MN
			28	Pharmaceutical Engineering	PH
13	Instrumentation & Control Engineering	ICE	29	Printing Technology	PT
14	Construction Engineering	COE	30	Power Engineering	PW
15	Dairy Technology	DT	31	Production Engineering	PE
16	Electrical Engineering	EE	32	Textile Technology	TT