APPENDIX –6

JECA syllabus

The papers will be based on Undergraduate Computer Application and equivalent courses followed in various Universities in India and on the following topics.

1. **C Programming**: Variables and Data types, IO Operations, Operators and Expressions, Control Flow statements, Functions, Array, Pointers, String Handling, Structures and Unions, Files Handling, Pre-Processor Directives, Command Line Arguments.

2. **Object Oriented Programming**: Data Types, If / Else If / Else, Loops, Function, Switch case, Pointer, Structure, Array, String, Function Overloading, Function templates, SCOPE of variable, Type aliases (typedef / using), Unions, Enumerated types (enum), Class, Constructors, Overloading Constructors, Member initialization in constructors, Pointers to classes, Overloading Operators, Keyword 'this', Static Members, Const Member Functions, Class Templates, Template Specialization, Namespace, Friendship (Friend Functions & Friend Classes), Inheritance, Polymorphism, Virtual Members, Abstract base class.

3. **Unix**: Following commands and its different options: Is, ps, pwd, mv, cp, touch, cat, time, cal, bc, sort, diff, wc, comm, In, du, kill, sleep, chmod, chown, chgrp, top, nice, renice, cut, paste, grep, file, whereis, which, echo, env, PATH, CLASSPATH, find.

   vi editor, shell, wildcard, shell script.

4. **Data Structure**: Searching, Sorting, Stack, Queue, Linked List, Tree, Graph.

5. **Introduction of Computers**: Bus structure, Basic I/O, Subroutines, Interrupt, DMA, RAM, ROM, pipeline, system calls.

6. **Operating System**: Process, Thread, CPU Scheduling, Deadlock, Synchronization, Memory Management, Disk Management, File Management.

7. **Computer Network**: Concepts of networking, Application areas, Classification, Reference models, Transmission environment & technologies, Routing algorithms, IP, UDP & TCP protocols, IPv4 and IPv6, Reliable data transferring methods, Application protocols, Network Security, Management systems, Perspectives of communication networks.

8. **Database Management System**: Introductions to Databases, ER diagram, Relational Algebra, Relational Calculus, SQL, Normalization, Transactions, Indexing, Query optimization.

9. **Software Engineering**: Introduction to Software Engineering, A Generic view of process, Process models, Software Requirements, Requirements engineering process, System models, Design Engineering, Testing Strategies, Product metrices, Metrices for Process & Products, Risk management, Quality Management.

10. **Machine Learning**: Classification, Decision Tree Learning, Artificial Neural Networks, Support Vector Machines, Bayesian Learning, Clustering, Hidden Markov Models.

..

1.0	**Introduction:**
	The West Bengal Joint Entrance Examinations Board
	The West Bengal Joint Entrance Examinations Board (WBJEEB) was established in 1962 by Government of West Bengal in exercise of the powers conferred under article 162 of the Constitution of India in pursuant to No. 828-Edn(T), dated 02.03.1962.
	Subsequently in 2014, the Government of West Bengal enacted the West Bengal Act XIV of 2014 to form **The West Bengal Joint Entrance Examinations Board** (hereinafter called '**Board**') and empowered it to conduct Common Entrance Tests for selection of candidates for admission to undergraduate and postgraduate Professional, Vocational and General Degree Courses in the State of West Bengal and to conduct on-line counselling process or otherwise adopting a single-window approach.
	WBJEEB has been instrumental in the admission process based on online application and allotment through e-Counselling since 2012. It advocates fairness and transparency, ensures no-error, and adopts state-of-the-art technology.
2.0	**The examination:** WBJEEB will conduct OMR based Common Entrance Test (**JECA-2022**) for admission in the academic session 2022-23 into Master of Computer Application (MCA) Course in various Universities, Government as well as Self Financing Institutes in the State of West Bengal.
2.1	**Schedule of JECA-2022:**
	# 15th May 2022 (Sunday), 11 a.m. to 1:00 p.m.
	JECA-2022 will be held once only and there shall be no further examination under any circumstances for those who are unable to appear on the above date and time of JECA-2022 examination.
2.2	**Pattern of Question Papers.** The Common Entrance Test will be on one paper only with following structure.

Category-1 Each Q carries 1 mark (-ve marks = -1/4)	Category-2 Each Q carries 2 marks (No -ve marks)	Total Number of Questions	Total Marks
No. of Q	No. of Q		
80	20	**100**	**120**

	All questions will be of **Multiple- Choice Question (MCQ)** type, with four answer options. Time for the paper is 2 hours. The questions will be in **English language only**
2.3	**Syllabus:** See Appendix-6
2.4	**Scoring Methodology**
	a) Category-I: 　　i.　Only one option is correct.

	ii. Correct response will yield 1 (one) mark for each question.
	iii. Incorrect response will yield -1/4 (25% negative) marks for each question.
	iv. For any combination of more than one option, even if it contains the correct option, the said answer will be treated as incorrect and will yield -¼ (negative 25%) marks.
	v. Not attempting the question will fetch zero mark
	b) Category-II
	i. One or more options is/are correct.
	ii. Marking all correct options only will yield 2 (two) marks.
	iii. For any combination of answers containing one or more incorrect options, the said answer will be treated as incorrect, and it will yield zero (0) mark even if one or more of the chosen options is/are correct.
	iv. For partially correct answers, i.e., when all correct options are not marked and also no incorrect options are marked, marks awarded = 2 × (no of correct options marked) / (total no of actually correct options)
	v. Not attempting the question will fetch 0 marks
2.5	**Mode of answering in the examination.**
	a) Questions are to be answered on specially designed optical machine-readable response **(OMR)** sheet, which will be evaluated by Optical Mark Recognition method. Thus, it is very important to follow the correct method of marking.
	b) Candidates will indicate response to the questions by **darkening the appropriate circle completely with blue/black ball point pen**.
	c) Any other kind of marking e.g., filling the bubble incompletely, filling with pencil, cross mark, tick mark, dot mark, circular mark, over writing, scratching, erasing, white ink, marking outside the bubble etc. may lead to wrong/partial/ambiguous reading of the response. **WBJEEB will be, in no way, responsible for such eventuality**.
	d) Response marking cannot be edited/changed/erased/modified.
2.6	**Ranking Methodology and publication of Merit Lists**
	a) WBJEEB will prepare merit ranks based on the candidates' **score in the Common Entrance Test.** Individual candidates will be able to view and download his/her Rank Card, which will contain score and rank. **WBJEEB does not publish any rank/score list for public** to ensure confidentiality to each individual candidate.
	b) The rank shall be in the name and style of **'GMR'** (General Merit Rank)
	c) The sequence of GMR will be prepared based on the marks scored.
	d) Ranking shall be done in the descending order of marks scored. In case of ties, tie-breaking rules as given in 2.7 shall be applicable.
	e) Separate reserved category merit position will also be indicated for respective category of students e.g., SC Rank, ST Rank, OBC-A Rank, OBC-B Rank, PWD Rank, etc., as applicable.
	f) **Sequencing order for counselling/allotment of seat/admission will be based on GMR only** (not on category ranks). Category ranks are for information only to