**PROPOSED TEST DESIGN:**

**NMIMS-CET – Engineering / Pharmacy**

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| **Subject** | **Topic** | **Item Count** |
| **Section 1: Mathematics (Time : 30 Minutes)** | Sets and Functions | 3 |
| Complex Number and Quadratic equation | 3 |
| Matrices and Determinants | 2 |
| Permutation and Combination | 2 |
| Mathematical Induction | 1 |
| Bionomial theorem and its Application | 2 |
| Sequence and Series | 1 |
| Limit , Continuity and Differentiability | 3 |
| Integral Calculus | 2 |
| Coordinate Geometry | 3 |
| Three Dimensional Geometry | 2 |
| Vector Algebra | 1 |
| Statistics and Probability | 2 |
| Trigonometry | 3 |
| **Sub Total (A)** | **30** |
| **Section 2: Physics (Time : 30 Minutes)** | Physics and measurement | 1 |
| Kinematics | 2 |
| Thermodynamics | 3 |
| Work, energy and power | 3 |
| Rotational motion | 1 |
| Gravitation | 1 |
| Laws of motion | 2 |
| Properties of solids and liquids | 1 |
| Electronic devices | 2 |
| Kinetic theory of gases | 1 |
| Oscillations and waves | 2 |
| Current electricity | 3 |
| Magnetic effects of current and magnetism | 2 |
| Electromagnetic induction and alternating currents, Electromagnetic waves | 2 |
| Optics | **3** |
| Electrostatics | 1 |
| **Sub Total (B)** | **30** |
| **Section 3: Chemistry (Time : 30 Minutes)** | **Physical Chemistry** | **Item Count** |
| Some basic concepts in chemistry, States of matter | 1 |
| Atomic structure | 2 |
| Chemical bonding and molecular structure | 2 |
| Chemical thermodynamics | 1 |
| Solutions ,Equilibrium | 2 |
| Redox reactions and electrochemistry | 1 |
| Chemical kinetics | 1 |
| **Sub Total (C1)** | **10** |
| **Organic Chemistry** | **Item Count** |
| Purification and characterization of organic compounds | 1 |
| Hydrocarbons | 2 |
| Chemistry in everyday life | 2 |
| Principles related to practical chemistry | 2 |
| Organic compounds containing halogens, Oxygen & Nitrogen | **2** |
| Polymers | 1 |
| **Sub Total (C2)** | **10** |
| **Inorganic Chemistry** | **Item Count** |
| Classification of elements and periodicity in properties | 2 |
| Block elements (alkali and alkaline earth metals) | 2 |
| P Block elements group 13 to group 18 elements, d- and f - block elements | 2 |
| Co-ordination compounds | 1 |
| Environmental chemistry | **1** |
| General principles and processes of isolation of metals | 2 |
|  | **Total (A+B+C)** | **90** |

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| **Section 4: Logical Intelligence (20 minutes)** | **Constructs** | **Item Count** |
| **Critical Thinking:** Decision Making (Take into cognizance various rules/ conditions and take decisions based upon those rules / conditions) Problem Solving (To analyse the given information and condense all the information in a suitable form and answer the questions asked) | 5 |
| **Verbal-logical reasoning:** Derive conclusions from logical premises or assess the validity of arguments based on statement of facts | 5 |
| **Numerical reasoning:** Venn Diagram (Identify the class-sub class relationship among given group of items and illustrate it diagrammatically) Mathematical Equalities | 5 |
| **Data Interpretation:** Be able to use the information given in graphs and charts to answer questions | 5 |
| **Total** | **20** |

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| **Section 5: Proficiency in Language (Time: 10 minutes)** | **Construct** | **Item Count** |
| **Error Recongnition:** Recognising grammatical structure and usage. | 2 |
| **Applied Grammar:** Using prepositions, determiners, connectives, tenses appropriately. | 2 |
| **Contextual Usage:** Using appropriate words in the given context | 1 |
| **Sequencing of Ideas:** Putting ideas into logical sequence by putting jumbled sentences in the correct order | 1 |
| **Reading Comprehension (1 Passages of maximum 350 words with 4 items):** Locating Information, grasping ideas, identifying relationships, interpreting ideas, moods, characteristics of characters, tone of passage, inferring , getting the central theme, evaluating | 4 |
| **Total** | **10** |

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| **Subject** | **Topic** | **Item Count** |
| **Section 6: Biology (Time : 30 Minutes)** | Inheritance and variation | 3 |
| Physiology, experimental setup, mechanisms & observations | 3 |
| Nervous system-Control and co-ordination | 3 |
| Respiration and circulation | 3 |
| Biotechnology- principles, processes and applications | 3 |
| Human Health and Diseases | 2 |
| Origin and Evolution of Life | 2 |
| Applied Biology- role of microbes | 2 |
| Plant Growth and Mineral Nutrition | 2 |
| Ecosystem and energy flow | 2 |
| Environmental issues, Biodiversity and conservation | 2 |
| Food production | 1 |
| Reproduction in Lower and Higher Animals | 1 |
| Reproduction in Lower and Higher Plants | 1 |
| **Sub Total (A)** | **30** |