NetajiSubhash Engineering College

Online Unit Test (OUT), MAY 2020

Name of the Department: BASIC ENGINEERING SCIENCES

Year: 1ST

Course Name: MATHEMATICS II A

Course Code: BS – M 201

Exam Date: 18/05/2020 Exam Time:10: 30 A.M. TO 12: 00 P.M. Exam Duration: 1 Hour 30 minutes

Exam Mode: Google Form /GATEtutor / Other (Please mention): Google Form

Syllabus of the Course for this OUT:

1. Basic Probability
2. Sums related probability
3. Discrete probability Distribution
4. Continuous probability Distribution
5. Sum related probability Distribution
6. Bivariate Distribution
7. Statistics

% of Completion of total Syllabus: 70%

NetajiSubhash Engineering College

Online Unit Test (OUT), MAY 2020

Name of the Department: BASIC ENGINEERING SCIENCES

Year: 1ST

Course Name: MATHEMATICS II B

Course Code: BS – M 202

Exam Date: 18/05/2020 Exam Time:10: 30 A.M. TO 12: 00 P.M. Exam Duration: 1 Hour 30 minutes

Exam Mode: Google Form /GATEtutor / Other (Please mention): Google Form

Syllabus of the Course for this OUT:

1. Conformal mappings, Mobius transformations and their properties.

2. Multiple Integration: Double integrals (Cartesian), change of order of integration in double integrals, change of variables (Cartesian to Polar), Applications: Areas and volumes, Center of mass and Gravity.

3. Triple integrals (Cartesian).

4. First order but not first degree differential equation

(a) Equation solvable for x

(b) Equation solvable for y

(c) Equation solvable for p

(d) Clairaut's Form

5. First order first degree differential equation

(a) Exact equation

(b) Non exact equation

(c) Linear form

(d) Homogenous equation

(e) I. F using chart

6.Higher order linear differential

(a) with constant coefficient

(b) with variable coefficient

(c) Variation of parameters

7.Power series Solution

8. Legendre Polynomial

9.Bessel's Function

10.Line and Surface Integral, Green's Theorem

11.Gauss Divergence Theorem, Stoke's Theorem

% of Completion of total Syllabus: 100%

NetajiSubhash Engineering College

Online Unit Test (OUT), MAY 2020

Name of the Department: BASIC ENGINEERING SCIENCES

Year: 1ST

Course Name: ENGLISH

Course Code: HM - HU 201

Exam Date: 19/05/2020 Exam Time:10: 30 A.M. TO 12: 00 P.M. Exam Duration: 1 Hour 30 minutes

Exam Mode: Google Form /GATEtutor / Other (Please mention): Google Form

Syllabus of the Course for this OUT:

1. Vocabulary Building

1.1 The concept of Word Formation: Compounding, Backformation, Clipping, Blending.
1.2 Root words from foreign languages and their use in English
1.3 Acquaintance with prefixes and suffixes from foreign languages in English to form derivatives.
1.4 Synonyms, antonyms, and standard abbreviations: Acronyms

2. Basic Writing Skills

2.1 Sentence Structures & Types: Simple, Compound, Complex
2.2 Use of phrases and clauses in sentences: Transformation of sentences, active, passive, narration
2.3 Importance of proper punctuation
2.4 Creating coherence: Arranging paragraphs & Sentences in logical order
2.5 Creating Cohesion: Organizing principles of paragraphs in documents
2.6 Techniques for writing precisely

3. Identifying Common Errors in Writing

3.1 Subject-verb agreement
3.2 Noun-pronoun agreement
3.3 Misplaced modifiers
3.4 Articles
3.5 Prepositions
3.6 Redundancies
3.7 Clichés

4. Nature and Style of sensible Writing

4.1 Describing

4.2 Defining
4.3 Classifying
4.4 Providing examples or evidence
4.5 Writing introduction and conclusion

5. Writing Practices

5.1 Comprehension
5.2 Précis Writing
5.3 Essay Writing
5.4 Business Letter, Cover Letter & CV; E-mail
5.5. Notice, Agenda, Minutes

6. Fundamentals of Theory of technical Communication

6.1 Communication cycle
6.2 Barriers
6.3 types
6.4 7 Cs

***The highlighted sections demand additional emphasis. ***

% of Completion of total Syllabus: 100%

NetajiSubhash Engineering College

Online Unit Test (OUT), MAY 2020

Name of the Department: BASIC ENGINEERING SCIENCES

Year: 1ST

Course Name: CHEMISTRY I

Course Code: BS-CH 201

Exam Date: 20/05/2020 Exam Time:10: 30 A.M. TO 12: 00 P.M. Exam Duration: 1 Hour 30 minutes

Exam Mode: Google Form /GATEtutor / Other (Please mention): Google Form

Syllabus of the Course for this OUT:

Unit -1: Quantum Chemistry, Atomic and Molecular structure, Aromaticity, Crystal field theory

Unit-2: Spectroscopy; Microwave, IR, UV and NMR spectroscopy,

Unit-3: Inter molecular Forces: excluded

Unit-4: Periodic properties (effective nuclear charge, electronic configuration, atomic radii, Ionization potential, electronegativity, electron affinity, polarizability, HSAB and molecular geometry)

Unit-5: Use of free energy in chemical equilibria (thermodynamics, electrochemistry, acid base, oxidation reduction, solubility equilibria, water chemistry and corrosion)

Unit-6: Stereochemistry: priority of ligands, drawing of different projection, R/S nomenclature up to two carbon center, newman projection, conformational analysis and comparison, Elements of symmetry (symmetry axis, symmetry palne, inversion center), Homomer, enantiomer, diastereomer, Optical activity, meso compound, racemic mixture etc.

Unit-7: Substitution, Aromatic Electrophilic Substitution, Addition, Elimination, Oxidation, Reduction, Ring opening, Cyclisation, synthesis of drug molecule.

% of Completion of total Syllabus: 100%

NetajiSubhash Engineering College

Online Unit Test (OUT), MAY 2020

Name of the Department: BASIC ENGINEERING SCIENCES

Year: 1ST

Course Name: PHYSICS I

Course Code: BS-PH 201

Exam Date: 20/05/2020 Exam Time:10: 30 A.M. TO 12: 00 P.M. Exam Duration: 1 Hour 30 minutes

Exam Mode: Google Form /GATEtutor / Other (Please mention): Google Form

Syllabus of the Course for this OUT: FOR SECTION F, G, H

1. Module 1:Mechanics:

Part A: Vector Calculus;

Part B: Classical Mechanics

2. Module 1: Oscillations

3. Module 2: Diffraction: Distinction between interference and diffraction, Fraunhofer and Fresnel diffraction, Fraunhofer diffraction at single slit, double slit, and multiple slits (only the expressions for maxima ; minima & intensity and qualitative discussion of fringes); diffraction grating(resolution formula only), characteristics of diffration grating and its applications.

4. Module 2: Polarisation: Introduction, polarisation by reflection, polarisation by double reflection, scattering of light, circular and elliptical polarisation, optical activity.

5. Module 3: Maxwell's Equations

6. Module 3: Magnetic Properties of Materials

7. Module 4: Quantum Mechanics: Introduction to Quantum Physics, Black Body Radiation, Explanation using he Photon concept, Compton effect, de Broglie hypothesis, Wave-particle duality, verification of matter waves, Uncertainty principle, Schrodinger wave equation, Particle in a box, Quantum Harmonic oscillator, Hydrogen atom.

Syllabus of the Course for this OUT: FOR SECTION I, J

1. **Module 2 (Optics):** Interference, distinction between interference and diffraction, Fraunhofer and Fresnel diffraction, Fraunhofer diffraction in single slit, double slit, multiple slits (only the expression of maxim, minima and intensity and qualatitive description of fringes); diffraction grating (resolution formulae only), characteristics of diffraction grating and its applications.

Introduction to polarization, polarization by reflection, polarization by double reflection, Malu's law, Wave plates, Brewster's law. Working principle and application of LASER.

2.Module 3 (Magnetic Properties of materials): Magnetization, permeability and susceptibility, classification of magnetic materials, diamagnetism, Para magnetism, ferromagnetism, magnetic domains and hysteresis, applications.

3.Module 4 (Quantum Mechanics): de-Broglie hypothesis and Uncertainty principle, Schrodinger wave equation, Particle in a box.

4.Module 5 (Statistical Mechanics): Qualitative treatment of Fermi-Dirac and Bose-Einstein Statistics and their applications.

% of Completion of total Syllabus: 100%

NetajiSubhash Engineering College

Online Unit Test (OUT), MAY 2020

Name of the Department: BASIC ENGINEERING SCIENCES

Year: 1ST

Course Name: PROGRAMMING FOR PROBLEM SOLVING

Course Code: ES - CS 201

Exam Date: 21/05/2020 Exam Time:10: 30 A.M. TO 12: 00 P.M. Exam Duration: 1 Hour 30 minutes

Exam Mode: Google Form /GATEtutor / Other (Please mention): Google Form

Syllabus of the Course for this OUT:

Covered part of the ENTIRE SYLLABUS AS PRESCRIBED BY MAKAUT

% of Completion of total Syllabus: 90% - 100%