# FACULTY OF MANAGEMENT
**BE (Civil/EIE/EEE/CSE/CME/DS) II - Semester (AICTE) (Backlog) Examination, March / April 2022**
**Subject: Engineering Physics**

Time: 3 Hours                                                                                         Max. Marks: 70

**Note:** (i)  First question is compulsory and answer any four questions from the remaining six  questions. Each Questions carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1. a) Define space lattice and unit cell

   b) Distinguish between spontaneous and stimulated emission

   c) What are soft and hard magnetic materials

   d) Distinguish between conduction current and displacement current

   e) Explain the differences between intrinsic and extrinsic semi conductors?

   f) What are point defects? Give their classification.

   g) Mention the drawbacks of free electron theory of metals.

2. a) Define Miller Indices. Deduce the expression for Interplanar spacing for a cubic crystal system.
   b) What are Schottky defects? Obtain an expression for concentration of Schottky defects in ionic crystals?

3. a) Explain in detail about Kronig-penny model and based on this explain classification of solids.
   b) Define dielectric constant. Determine the dielectric constant of a given material by using capacitance bridge method.

4. a) Obtain the expressions for energy eigen value and eigen function for a particle in an infinite square well potential of width L.
   b) Write the Maxwell's equations in both differential and integral forms. Give relationship between D.E and P.

5. a) What are domains? Based on domain theory explain the hysteresis curve of a ferromagnetic material.
   b) Explain the general properties of superconductors. Give any four applications of superconductors.

6. a) What are Einstein's co-efficients. Deduce the relationship between the Einstein's coefficients. Mention four applications of lasers.
   b) Explain the principle of light propagation through an optical fibre and deduce an expression for acceptance angle and numerical aperture.

7. a) Explain Bragg's law. Describe the powder method to calculate the lattice constant of a given crystal?
   b) Define dielectric polarization and derive an equation for electronic polarizatbility in dielectric materials?

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# FACULTY OF ENGINEERING
## B.E. (CIVIL/EEE/EIE/ECE/CSE/CME) II - Semester (AICTE) (Backlog)
### Examination, March / April 2022
### Subject: Physics

**Time: 3 Hours**                                                 **Max. Marks: 70**

### (Missing data, if any, may be suitably assumed)

## PART – A

**Note: Answer all questions.**                                **(10 x 2 = 20 Marks)**

1. Draw a plane in a cubic system with miller indices <100>.
2. Silver has FCC structure with atmicradius 1.441 $A^\circ$. Then find the spacing of <220> planes.
3. Define and write equation for conductivity of a semiconductor.
4. Write about dielectric material and define dielectric constant.
5. If velocity of an electron is 6.625x10$^3$ m/sec, then find its de-Broglie wave length.
6. Write the Gauss law in electrostatics.
7. Explain Antiferromagnetism.
8. Define critical magnetic field in a super conductor.
9. Write any four applications of Lasers.
10. Define Acceptance angle.

## PART – B

**Note: Answer any five questions.**                                **(5 x 10 = 50 Marks)**

11. Derive an equation for concentration of "schottky" defects in ionic crystal.

12. Explain about ferro electricity. Discuss about Barium titanate crystal.

13. Derive time dependent schrodinger equation.

14. Explain the BCS theory of superconductors and Magnetic Levitation.

15. Explain the production mechanism of Ruby laser with neat diagram.

16. Derive the Maxwell's equations with Basic Laws of Electricity and Megnetism.

17. Define Hall Effect and derive an equation for Hall coefficient.

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# FACULTY OF ENGINEERING

## B. E. II – Semester (CBCS) (Backlog) Examination, March / April 2022

### (Common for All Branches)

### Subject: Business Communication & Presentation Skills

Time: 3 hours                                                          Max. Marks: 70

*(Missing data, if any, may be suitably assumed)*

## PART – A

**Answer all of the following:**                                      **(20 Marks)**

**(a) State whether the following is TRUE or FALSE.**        **(1 x 2 = 2 Marks)**

1. The basic objective of every job application is to draw a clear connection between the job you are seeking and your qualifications.
2. The Statement of Purpose gives you an opportunity to show how you are unique and also how you can add value to your class.

**(b) Choose the best answer from the given options.**        **(1 x 2 = 2 Marks)**

1. A _____ is a written summary of your education, experience, skills and achievements.
   (i) Agenda   (ii) Notice   (iii) Minutes of the meeting   (iv) Resume.
2. The official records of discussions held and decisions taken at a meeting are called _____
   (i) Job application  (ii) Notice (iii) Minutes of the meeting (iv) Memorandum.

**(c) State whether the following are TRUE or FALSE.**        **(1 x 2 = 2 Marks)**

1. Debate is a cooperative group process but GD is basically competitive in nature.
2. A message from sub-ordinate to superior is an example of upward channel.

**(d) Choose the right option for the sentences given below**.  **(1 x 2 = 2 Marks)**

1. What is the one thing you don't want to do during the first interview?
   (i) Negotiate pay
   (ii) Connection with the interviewer
   (iii) Communicate why you are a good fit
   (iv) Close by arranging the next interview

2. Letter of transmittal is a part of
   (i) A short report
   (ii) Enquiry letter'
   (iii) Long formal report

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**(e) Choose the right option for the sentences given below.   (1 x 3 = 3 Marks)**

1. Executive decisions in the professional world may be based on _____
   (i) Effective resumes   (ii) Reports   (iii) Notices   (iv) None
2. The _____ format can be used for long and technical reports
   (i) Letter format   (ii) Manuscript format  (iii) Memo format  (iv) None
3. Daily production and sales report are the examples of _____ Report
   (i) Routine reports          (ii) Annual reports
   (iii) Informal reports        (iv) All of the above

**(f) Write short notes on the following.                 (2 x 3 = 6 Marks)**

1. Why are GDs conducted as a part of selection process?
2. Importance of time management.

**(g) Fill in the blanks with appropriate answers.           (1 x 3 = 3 Marks)**

1. _____ quadrant of Johari window reveals information that is known to self and seen by others.
2. An _____ is a list of topics to be discussed at a meeting.
3. List out the phases involved in "coming together" part as proposed by Knapp's model.

**PART – B**

**Answer any five of the following:                         (5 x 10 = 50 Marks)**

1. Discuss the importance of ABC of technical communication.

2. What is persuasion? Discuss a few important persuasion skills.

3. Write a letter of complaint to the Purchase manager of Alpha Engineering company, Hyderabad, regarding the poor quality of the scanner they have supplied. Also draft the adjustment letter.

4. What are the different styles of communication? Which style of communication do you think is effective? Why?

5. Write a resume and a job application letter for the post of a junior engineer at Nascent Technologies, a software company in response to an advertisement.

6. Write a general report on the "technical fest" that was organized by your college.

7. Discuss Johari Window and its various quadrants with suitable examples.

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