

**ADIKAVI NANNAYA UNIVERSITY:: RAJAMAHENDRAVARAM**

**I BTech (Common to CSE,IT,ECE & EIE wef 2017-18) II Semester**

**ECEEIE201 ENGLISH-II (MODEL QUESTION PAPER)**

**Time: 3hrs**

**Max. Marks: 75**

**SECTION - A**

**Answer ALL questions.**

**4 X 15 =60M**

1. a) Define Listening Process and explain different types of listening with appropriate examples 15M  
(OR)  
b) What are different barriers to Listening? Suggest various effective strategies for better Listening 15M
2. a) Describe English sounds according to articulation with the help of a Phonetic chart. 15M  
(OR)  
b) What are effective speaking strategies for Public Speaking 15M
3. a) Explain different types of reading 15M  
(OR)  
b) Define Reading Process illustrating various stages 15M
4. a) Write a letter to newspaper editor describing university 15M  
(OR)  
b) Attempt a technical paper on any one of the following 15M
  1. Computer Programming
  2. Engineering Mechanics
  3. Electronics and Networking

**SECTION - B**

**5. Answer any FIVE questions**

**5 X 3 = 15M**

- a. Precise writing
- b. Prepare your Resume
- c. Skimming
- d. Intonation
- e. Accent
- f. Conversations
- g. Review Writing
- h. Summarizing and Paraphrasing

**ADIKAVI NANNAYA UNIVERSITY:: RAJAMAHENDRAVARAM****I BTech (Common to CSE,IT,ECE & EIE wef 2017-18) II Semester****ECEEIE202 MATHEMATICS-II (MODEL QUESTION PAPER)****Time: 3hrs****Max. Marks: 75****SECTION - A****Answer ALL Questions.****4 X 15 = 60M**

1. a) Test for consistency and solve

$$2x - 3y + 7z = 5; 3x + y - 3z = 13; 2x + 19y - 47z = 32 .$$

- b) Verify Cayley-Hamilton Theorem for the matrix A and find its inverse, where

$$A = \begin{bmatrix} 7 & 2 & -2 \\ -6 & -1 & 2 \\ 6 & 2 & -1 \end{bmatrix} . \quad [7+8]$$

(OR)

- c) Find Eigen values and Eigen vector of
- $A = \begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}$
- .

- d) Determine the rank of a matrix
- $A = \begin{bmatrix} -2 & -1 & -3 & -1 \\ 1 & 2 & 3 & -1 \\ 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & -1 \end{bmatrix}$
- [8+7]

2. a) Find the Laplace transform of
- $\cos 7t + \sin 9t$
- .

- b) Using Laplace transform, Evaluate
- $\int_0^{\infty} \frac{\cos at - \cos bt}{6} dt$
- . [7+8]

(OR)

- c) Find the Laplace transform of
- $e^{3t} - 2e^{-2t} + \sin 2t + \cos 3t + \sinh 3t - \cos 4t + 9$

- d) Find
- $L^{-1}\{2S^3 + 3/S^2(S^2 + 1)(S^2 + 2)\}$
- . [8+7]

3. a) Solve in series
- $(1 - x^2) \frac{d^2y}{dx^2} - x \frac{dy}{dx} + 4y = 0$
- .

- b) Show that
- $J_{5/2}(x) = \sqrt{2/\pi x} \left[ \frac{3-x^2}{x^2} \sin x - (3/2) \cos x \right]$
- . [8+7]

(OR)

- c) Show that
- $J_4(x) = \left(\frac{48}{x^3} - \frac{8}{x}\right) J_1(x) + \left(1 - \frac{24}{x^3}\right) J_0(x)$

- d) Show that
- $\int_0^{\pi} e^{-ax} J_0(bx) dx = \frac{1}{\sqrt{a^2+b^2}}, a > 0$
- . [8+7]

4. a) show that
- $P_0(x) = 1, P_1(x) = x, P_2(x) = \frac{3x^2-1}{2}, P_3(x) = \frac{1}{2}(5x^3 - 3x),$

$$P_4(x) = \frac{1}{8}(35x^4 - 30x^2 + 3)$$

- b) Show that
- $\int_{-1}^1 x^2 P_{n-1} P_{n+1} dx = \frac{2n(n+1)}{(2n-1)(2n+1)(2n+3)}$
- [8+7]

(OR)

- c) Express
- $f(x) = x^4 + 3x^3 - x^2 + 5x - 2$
- in term of legendre Polynomials.

d) Prove that  $(2n + 1)(1 - x^2)P_n'(x) = n(n + 1)P_{n-1}(x) - P_{n+1}(x)$ . [7+8]

**SECTION - B**

**5 X 3 = 15M**

**5. Answer any FIVE questions**

- a. Write the statement of Cayley-Hamilton Theorem and Define rank of the matrix.
- b. The inverse of the matrix  $\begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$  is  $\begin{bmatrix} 3 & 2 & 6 \\ 1 & 1 & k \\ 2 & 2 & 5 \end{bmatrix}$  then find the value of K.
- c. Find the inverse Laplace Transform  $S + 3 / S^2 - 10S + 29$
- d. Evaluate  $\frac{dy}{dx}(x^n)J_n(x) = (x^n)J_{n-1}(x)$
- e. Show that  $\int_{-1}^1 (1 - x^2) P_n'(x) P_n'(x) dx = \begin{cases} 0 & \text{when } m \neq n; \\ \frac{2n(n+1)}{(2n+1)} & \text{when } m = n. \end{cases}$
- f. Find the orthogonality of the  $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 3 & 6 & 9 \end{bmatrix}$
- g. Write the Statement of Rodrigue's formula and recurrence formula of for Bessel's function.
- h. A function is periodic in  $(0,2b)$  and is defined as  $f(t) = \begin{cases} 1 & \text{if } 0 < t < b; \\ 0 & \text{if } b < t < 2b. \end{cases}$   
Find the Laplace Transform of f(t).

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**I BTech (Common to CSE,IT,ECE & EIE wef 2017-18) II Semester**

**ECEEIE203 DATA STRUCTURES (MODEL QUESTION PAPER)**

**Time: 3hrs**

**Max. Marks: 75**

**SECTION - A**

**Answer ALL questions**

**4 x 15 = 60M**

1. a) Define Recursive Process. Explain with example 5M  
b) Explain Simulation Process in Recursion 10M  
(OR)  
c) What is Stack? Explain various operations in Stack 6M  
d) Explain the process of conversion from infix expression to postfix form 9M
2. a) Explain Queue as an Abstract Data Type with example 6M  
b) How to implement Queue using Arrays. Explain with example 9M  
(OR)  
c) What is Linked List? Explain representation of Tree operations 5M  
d) Explain implementation of Circular Linked List with example 9M
3. a) What is Tree? Explain representation of Tree operations 5M  
b) Explain various Tree Traversal techniques 10M  
(OR)  
c) Define Graphs? How to represent Graph. Explain with Example 5M  
d) Explain Minimal Spanning Tree with example 10M
4. a) Explain Sequential Search method with example 7M  
b) Explain Binary Search technique with example 8M  
(OR)  
c) Explain Bubble Sort with example 7M  
d) Explain Quick Sort with example 8M

**SECTION - B**

**5. Answer any FIVE questions**

**5 x 3 = 15M**

- a. Arrays
- b. Stack as Abstract Data type
- c. Types of Queues
- d. Doubly linked list representation
- e. Binary Tree Applications
- f. Transitive Closure
- g. Efficiency of Binary Search Technique
- h. Shell Sort

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**I BTech (Common to ECE & EIE wef 2017-18) II Semester**

**ECEEIE204 PHYSICS (MODEL QUESTION PAPER)**

**Time: 3hrs**

**Max. Marks: 75**

**SECTION A**

**Answer ALL questions**

**4X15=60M**

- 1 a) Explain the working of Carnot's heat engine; obtain an expression for its efficiency [10M]  
b) State and explain first law of thermodynamics [5M]  
(OR)  
c) Describe the reversible and irreversible process [10M]  
d) Explain about entropy. [5M]
- 2 a) Discuss the growth and decay of current in L-R Circuit. [10M]  
b) Explain about Lenz's Law [5M]  
(OR)  
c) Explain what is Hall Effect and its importance [10M]  
d) Write a short note on Faraday's law of induction [5M]
- 3 a) What is inference? Obtain the conditions for the inference of light reflected by a thin parallel film. [10M]  
b) In Newton's rings experiment the diameter of 10<sup>th</sup> dark ring is 0.433 cm. Find the wavelength of incident light, if the radius of curvature of lens is 70 cm. [5M]  
(OR)  
c) What is polarization? State and explain Brewster's law. [7M]  
d) How do you distinguish between a Quarter wave plate and a Half wave plate. [8M]
- 4 a) With neat diagrams, describe the principle, construction and working of Gas laser. [10M]  
b) Give short note on stimulated emission [5M]  
(OR)  
c) What is Magnetostriction effect? Explain how ultrasonic's can be generated by piezoelectric phenomena [10M]  
d) Explain acceptance angle and numerical aperture [5M]

**SECTION B**

**5. Answer any FIVE questions**

**5 X 3=15M**

- a. Explain the second law of thermodynamics  
b. Calculate the efficiency of a reversible heat engine  
(i) working between 72<sup>o</sup> C and 187<sup>o</sup>C (ii) working between 32<sup>o</sup>C and 127<sup>o</sup>C  
c. Give some applications of Gauss's law  
d. Explain magnetic force on current  
e. Describe the arrangement of Newton's rings experiment.  
f. Explain Nicol's prism.  
g. Applications of optical fibre communication system .

- h. Define Ultrasonics ? Give some advantages of ultrasonic waves.

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**I BTech (Common to ECE& EIE wef 2017-18) II Semester**

**ECEEIE205 ENGINEERING DRAWING (MODEL QUESTION PAPER)**

**Time: 3hrs**

**Max. Marks: 75**

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**SECTION A**

**Answer ALL questions**

**4 X15=60M**

- 1 a) The headlight reflector of a four-wheeler has a maximum rim diameter of 115 mm and a Maximum depth of 90 mm .Draw the Shape of the reflector. Draw a tangent and normal at any point on the curve. [10M]
- b) Inscribe a regular pentagon in a circle of 70mm diameter [5M]
- (OR)
- c) The distance between two fixed points is 90mm. A point P moves such that the difference of its distances from two fixed points always remains constant and is equal to 60 mm. Draw the loci of P. Draw the tangent and normal at any point on the hyperbola. [10M]
- d) Super scribe/Describe/Circumscribe an equilateral triangle about a circle of 50 mm diameter. [5M]
- 2 a) Construct a Vernier scale of RF= 1: 25 to show decimeters, centimeters and millimeters. The scale should be capable of reading up to 4 decimeters Mark on your scale the following distances: (a) 3.23 dm and (b) 3.65 dm [10M]
- b) Draw the projections of the following, keeping the distance between the projectors as 25mm on the same reference line:
- (i) A- 25mm above HP and 50mm behind the VP.
- (ii) B- 40 mm below HP and 45mm in front of the VP.
- (iii) C- on HP and 25mm behind VP. [5M]
- (OR)
- c) A motor car is running at a speed of 60 kph. On a scale of RF = 1 / 4,00,000 show the distance travelled by car in 47 minutes. [10M]
- d) A line CD 30 mm long is parallel to both the planes. The line is 40 mm above HP and 25 mm in front of Vertical Plane. Draw its Projections. [5M]
- 3 a) Draw the projections of a cone, base 30 mm diameter and axis 50 mm long, resting on HP on a point of its base circle with the axis making an angle of 45° with HP and parallel to VP. [15M]
- (OR)
- b) A right hexagonal prism of side of base 24 mm and axis 56 mm long is lying on one of the corners of the base. Its axis is inclined an angle of 30° to HP. Draw the isometric projection of the solid. [15M]
- 4 a) The front view and top view of a straight line PQ measures 50mm and 65 mm respectively. The point P is in the HP and 20 mm in front of the VP and the front view of the line is inclined at 45° to the reference line. Determine the true length of PQ, true angles of inclination with the reference planes and the trace. [8M]

- b) A thin rectangular plate of sides 50mm x 25mm has its shorter side in HP and inclined at an angle of  $30^\circ$  to the VP. Project its front view when its top view is a Perfect Square of 25mm side [7M]

(OR)

- c) Draw the Projections of a line PQ 100 mm long inclined at  $30^\circ$  to HP and  $45^\circ$  to VP. Point P is 20 mm above HP and in VP. Also determine the apparent lengths and inclinations. [8M]
- d) An isosceles triangular lamina has base 40 mm long and altitude 56 mm. It is so placed on Vertical Plane such that in the front view it is seen as an equilateral triangle of 40mm sides with the side that is contained in Vertical Plane is inclined at  $45^\circ$  to Horizontal Plane. Draw its Top View and front views. Also find the inclination of the lamina to Vertical Plane [7M]

### SECTION B

**5. Answer any FIVE questions**

**5X3=15M**

- a. What is representative fraction?
- b. Define the term horizontal trace.
- c. What is meant by oblique plane?
- d. Define the term apparent angles of inclination in the projection of straight lines.
- e. What do you understand by a "Right Regular Prism"
- f. What is the difference between right and oblique solids?
- g. Define the terms: Isometric axes, Isometric Planes
- h. Define first angle projection.

**ADIKAVI NANNAYA UNIVERSITY:: RAJAMAHENDRAVARAM**

**I BTech (Common to ECE & EIE wef 2017-18) II Semester  
ECEIE206 PROFESSIONAL ETHICS AND MORAL VALUES  
(MODEL QUESTION PAPER)**

**Time: 3hrs**

**Max. Marks: 75**

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**SECTION A**

**Answer ALL questions**

**4x15=60M**

- 1 a) Discuss the need for value education and enumerate its content. [7]  
b) Critically evaluate the process of self-exploration. [8]  
(OR)  
c) Define ethics and give an account on ethical vision. [7]  
d) Explain in detail the classification of human values. [8]
- 2 a) Elucidate the nature of ethics for engineering profession. [8]  
b) Give a note on code of ethics with specific reference to CSI. [7]  
(OR)  
c) Write briefly about engineering as social experimentation. [7]  
d) Explain the role of engineers in promoting ethical climate. [8]
- 3 a) Discuss the moral responsibility of engineers towards safety. [8]  
b) Explain the Fukushima nuclear disaster with the ethical issues involved. [7]  
(OR)  
c) Enlist the rights of a professional. [7]  
d) Trace the importance of having regulatory criteria for a balanced outlook on law. [8]
- 4 a) Define the concept of globalization and explain the role of MNCs in India. [8]  
b) Discuss the importance of environmental ethics. [7]  
(OR)  
c) Critically classify cybercrimes with relevant examples. [8]  
d) Discuss the concept of harmony in life. [7]

**SECTION B**

**Answer any FIVE questions**

**5 X 3=15M**

- 5.
- a. Introspection
  - b. Ethical decisions
  - c. Professionalism
  - d. Engineers as leaders
  - e. Chernobyl disaster
  - f. Gender discrimination
  - g. Computer ethics
  - h. Ethical living