I YEAR I SEMESTER BSc MSCs SYLLABUS

SRI RAMAKRISHNA DEGREE COLLEGE (AUTONOMOUS)

NANDYAL

SRI RAMAKRISHNA AUTONOMOUS DEGREE COLLEGE, NANDYAL

I B.A/B.Com/B.Sc. Courses

Semester-I

English Praxis Course-1 (2020-21 Regulations)

Unit-1: Listening skills

1. Importance of Listening
2. Types of Listening
3. Barriers to Listening
4. Effective Listening

Unit-2: Speaking skills

1. Sounds of English : Vowels and consonants
2. Word Accent
3. Intonation

Unit-3: Grammar

1. Concord
2. Modals
3. Tenses
4. Articles
5. Prepositions
6. Question tags
7. Sentence Transformation (Voice, Reported speech& Degrees of comparison)
8. Error correction

Unit-4: Writing skills

1. Punctuation
2. Spelling
3. Paragraph writing

Unit-5: Soft skills

1. SWOC
2. Attitude
3. Emotional Intelligence
4. Telephone Etiquette
5. Interpersonal skills

B.A/B.Com/B.Sc (Three years) Degree Examinations
Model Question Paper
Ist year Ist semester Examination

Title of the paper: English Praxis Course-1

Time: 3 Hours

Max. Marks: 70

Section-A

I. Read the following passage carefully and answer the questions that follow: 5x1=5M

News is as old as Man. When we meet someone, we generally ask, "What is the News?" People in villages meet at a centre-(Racchabanda) to exchange news about others. News is linked to Geography, to time, to the character of the people, their needs and ambitions etc. News is an acronym for North, East, West and South.

News is not something that is spontaneous. It is manufactured first by the influential men and women in the society, second by the media-organization and third by the reporters. News reporters often use the word "story". Story is any narrative or descriptive article in a Newspaper. This word is most bandied between a News editor and a reporter.

1. Where do people of villages meet to exchange News?
2. Is News linked with the character of a person?
3. What are various aspects linked with News?
4. What is the term used by News reporter?
5. How the news is generally manufactured?

II. Fill in the blanks with suitable articles: 5x1=5M
1. Would you like _____ cup of coffee?
2. _____ apple a day keeps the doctor away.
3. What is _____ capital city of Australia?
4. It has been _____ honour to work for you.
5. _____ price of gas keeps rising

III. Fill in the blanks with suitable prepositions: 5x1=5M
1. My best friend lives _____ Italy.
2. Tourists come _____ boat.
3. He was disappointed _____ his results.
4. I hope to find a solution _____ my problem.
5. Can you see the poster _____ the wall.

IV. Fill in the blanks with the correct form of the verb given in the brackets: 5x1=5M
1. I_____ the newspaper every day. (read)
2. We_____ foot ball for one hour. (play)
3. Geetha _____ a dance recital at Ravindra Bharathi yesterday. (give)
4. Earthquakes were occurred in Bihar after we _____ the place. (leave)
5. Dolphins _____ in water. (live)

V. Match the following sentences with the correct question tags: 5x1=5M

1) You are beautiful   (   )   a) won't he?
2) I didn't like these books   (   )   b) hasn't she?
3) My father will read magazines   (   )   c) aren't you?

4) I am singing a song
5) She has visited her parents   (   )   d) do I?
(   )   e) aren't I?

VI. Correct the following sentences wherever necessary:

5x1=5M

1) I am suffering from fever since Monday.
2) One of my friends have gone to the Andamans.
3) Each of the candidates were interviewed.
4) He is an young research scholar.
5) Economics are a difficult subject.

VII. Rewrite the following as directed:

5x1=5M

1) Reckless driving causes many accidents. (Change it into passive voice)
2) He said, "I have passed the examination."(Change it into indirect speech)
3) Open the window. (Change it into passive voice)
4) Mohan said," I don't believe you. (Change it into indirect speech)
5) Tirupathi is one of the most popular pilgrim towns. (Change it into positive degree)

Section-B

VIII. Punctuate the following:

5M

i don't know what it is to see into the heart of a friend through that window of the soul the eye

IX. Write a paragraph by using the following hints given below and suggest a suitable title: 5M

Reading hobby- good and bad books- of the hour and forever- books as best companions- they entertain educate and enlighten-make one forget one's loneliness.

X. Answer any Two of the following questions:

2x5=10M

1) Write a note on the types of listening.
2) What are the barriers to listening?
3) Explain the strategies for effective listening.

XI. Answer any Three of the following questions:

3x5=15M

1) Mark the stress of the following words:
    a) Absent b) preparation c) Herself d) beauty e) careful
2) Write a note on English Consonant sounds with examples
3) How can one develop Positive Thinking?
4) What are the benefits of SWOC analysis?
5) Why is phone etiquette important?

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TELUGU Semester-I

పాఠ్య ప్రణాళిక

యూనిట్-I

రాజనీతి — నన్నయ

మహాభారతం-సభాపర్వం-ప్రథమాశ్వాసం-(26-57 పద్యాలు)

యూనిట్-II

దక్షయజ్ఞం — నన్నెచోడుడు

కుమారసంభవం-ద్వితీయాశ్వాసం-(49-86 పద్యాలు)

యూనిట్-III

ధౌమ్య ధర్మోపదేశము — తిక్కన

మహాభారతం-విరాటపర్వం-ప్రథమాశ్వాసం-(116-146) పద్యాలు

యూనిట్-IV

పలనాటి బెబ్బులి — శ్రీనాథుడు (పలనాటి వీరచరిత్ర-ద్విపద కావ్యం పుట 108-112
'బాలచంద్రుడు భీమంబగు సంగ్రామం బొసర్చుట. (108).
..... వెఱగంది కుంది' (112) సం. అక్కిరాజు ఉమాకాంతం
ముద్రణ.వి.కె.స్వామి, బెజవాడ 1911.

యూనిట్-V

సీతారావణ సంవాదం — మొల్ల

రామాయణము-సుందరకాండము-(40-87 పద్యాలు)

✦వ్యాకరణం

సంధులు: ఉత్వ, త్రిక, ద్రుతప్రకృతిక, నుగాగమ,ద్విరుక్తటకారాదేశ, యణాదేశ, వృద్ధి, శ్చుత్వ,
జశ్త్వ, అనునాసిక సంధులు.

సమాసాలు: అవ్యయీభావ, తత్పురుష, కర్మధారయ, ద్వంద్వ, ద్విగు, బహువ్రీహి.

అలంకారాలు:

అర్థాలంకారాలు : ఉపమ, ఉత్ప్రేక్ష, రూపక, స్వభావోక్తి, అర్థాంతరన్యాస, అతిశయోక్తి.

శబ్దాలంకారాలు : అనుప్రాస (వృత్త్యనుప్రాస, ఛేకానుప్రాస లాటానుప్రాస, అంత్యానుప్రాస)

ఛందస్సు

వృత్తాలు: ఉత్పలమాల, చంపకమాల, శార్దూలము, మత్తేభము;

జాతులు : కందం. ద్విపద; ఉపజాతులు : ఆటవెలది, తేటగీతి, సీసం మరియు ముత్యాలసరాలు

Time 3 hours   Max Marks -70

I   క్రింది గద్యానిలను ఒక్కదానికి కవిపరిచయము
     ప్రతిపదార్థ తాత్పర్యాన్నిలను వ్రాయండి?

   (ఏ) కడు జనువాడునై పురుషకార్యము దక్షతనైన మంత్రిపం   ౮
      పకరగ రాజపుత్రుల మహాధనవంతుల చేసి   వారితో
      నొడబడి పక్ష మర్పడగ నుండగా ధన మెట్టి వారికొ
      గడుకొని చేయుచుందువ జగన్మత గరభ్యము ముఖ్యవేయుమనో

   (ఆ) స్యూల సమునఖితాంగుల చతుర్భుజపొంతలొత్తు శూలకా
      పాలకలొకకార్తక క్షిషాధతుల ప్రమథాది నాథులా
      బిలపంత్రముల నిఖిల భోకరమార్తులు వచ్చి రోలి గం
      తాల సమేతమై భువనకంపముగా గణనాథ పాలికిన్

II   ఈ క్రింది వానిలొ రెంతింటక సందర్భసు పాత్ర
     వానిఖనిలు వ్రాయండి   2×3 = 6

   1. బలసాత్తు డినమ్మైన బ్రతకగగలము
   2. రాముడేరిత లంకకు రాగలంతు ?
   3. చచ్చిన బ్రతకిన సౌఖ్యి మచ్చుటన
   4. ఆవశ్యము నొగ్గొనకించు నతడు శత్రుంథినన్

III క్రింది వానిలొ రెంతింటక సంగ్రహ సమాధానాలు వాయండి
                                                    2×5 =10
   (1) బాల చంద్రుడిని చూసి నలగామరాజు స్వైనికలు
      భయపడిన విధమెట్టిది?
   (2) తనను నిందించిన నేతను రావణుడు బెదిరించిన విధమెట్టిది?
   (3) ఢవిని[నిలు] పట్ల రాజు వన్నివహించవలసిన తీరును తెలపండి?
   (4) దక్షా కోసు వెయుతయూ ప్రమథాదులు చేసిన పనులేవి?

IV. ఈ క్రింది వానిస ప్రశ్నలలా మూడింటికి సమగ్రంగా
సమాధానాలు వ్రాయండి?   3×10 = 30

1) నారదుడు ధర్మరాజునకు తెలిపిన రాజనీతిని సంగ్రహంగా తెలపండి

3) దక్షయజ్ఞం పాడైపోదిగ కథను వ్రాయండి

3) దోమనిడు పాండవులకు చేసిన ధర్మోపదేశమును వివరించండి

4) పల నాటి యుద్ధములా బాలచంద్రుని యుద్ధ కౌశలాన్ని వివరించండి

5) సీతాపహరణ సంవాదాన్ని సంగ్రహంగా వివరించండి

6) నన్నయ కవితారీతులను పోల్చిన రాజనీత పాఠములా అవి ఎంత
వరకు ప్రతిబింబనుచున్నాయో తెలపండి

V. క్రింది వానిలా నాల్గింటని విడదిసి వానికరణ కారణిములు చెలుండి

అ) 1) దను ఘోష్వరుడు   2) జగనషియుడు   3) వా ద్వేషప సేవ
   4) అభనింరము   5) శ్వైత వాద్ధి   6) కాలాగ్ని
   7) వాసువొలె   8) తద్వసరము   4×1 = 4

ఆ) క్రింది వానిలా నాల్గింటికి విగ్రహవాకనిము సమాస నామయులను తెల్పండి
   1) వనజగద్దుడు   2) కనఘుడు   3) దివానిక రక్షము   4) శయంభువము   4×1 = 4
   5) సురవరుల   6) త్రిలోకములు   7) ఉపాచారరుల   8) క్రిపాగనలము

VI. క్రింది పదానిలలా ఒక పదనింలా గల అలంకారాన్ని గుర్తించి
లక్షణి లక్షణ సమనషియు చేయండి.   1×4 = 4

(1) పేటకాటయముట్టి వెనుకొనగా శేషిత
    నగముచుఱకి దారు నమిలి వొతె
    నత్రగజము మిది కాసపనాటకుండు
    వేళకి పాటు ప్రమథరాజి యెురవి

(2) లొకాలొకములొనల
    చొకట యెల్ల నొక్క పాడవ సొకాని మనానా
    నొకాశమునఱ్కి వచ్చెమ
    పాకాళి మువాఅయంకరాకారములొన్

VII. ఈ క్రింది పదనిపాదాలలా ఒక్కదానికి గణవిభజన చేసి
యతని గుర్తించి లక్షణియులు వ్రాయుము   1×4 = 1
    1. రామున్ గమని చెప్పిడిప నగరా రాకెండు బింబా ననా
    2. పే లోత తెలసిన నారులకు
       మా ఆతక యునికి చెసు మనుఘింద్రుతఱన్

प्राचीनसाहित्यं

1)आर्यपादुकाभिषेकः

2)यक्षप्रश्नाः

आधुनिकसाहित्यं

1)मेवाडराज्यस्थापनम्

2)विवेकानन्दसूक्तयः।

गद्यसाहित्यं

1)अत्युत्कटैःपापपुण्यैःइहैवफलमश्नुते

2)शूद्रकवीरवरकथा।

व्याकरणं

1)शब्दाः(देव,कवि,भानु,धातृ,पितृ,गो,रमा,मति)

2)धातवः(भू,गम्,ष्ठा,द्रिशिर्,लभ्,मुद,अस्,भाष)

3)सन्धयः(अच्- हल्सन्धयः)

4)समासाः(द्वन्द्व,तत्पुरुष,कर्मधारय,द्विगु)

Sri Ramakrishna autonomous degree college Nandyal
BA/B.com/B.sc/B.B.A.1st year -1st Semester
Subject :Sanskrit
Model question Paper (2020-21)

Time:3hrs.   **Marks:70**

प्रथमो भागः

I.   द्वौ श्लोकौ पूरयित्वा भावं लिखत ।   2*5=10

अ)सान्त्विता…………………

…………… राज्यमकण्ठकम्।।

आ) अद्यार्य…………………

…………………दिशोदश।।

इ) माता… ………………………

…………………तृणात्।।

ई) सार्थः… …………………

………………………मरिष्यतः।।

||.चतुर्णा ससन्दर्भ भावः च लिखत।   4*3=12

अ) न ही जीवितस्तस्य वनमागन्तुमर्हसि।

आ) बुद्धिमान् वृद्धसेवया।

इ) अकस्मादागन्तुना सह मैत्री नयुक्ता ।

ई) द्वौ बाहू तृतीयश्च खङ्गः ।

उ) सत्यमूलानि सर्वाणि सत्यान्नास्ति परं पदम्।

ऊ) अहिंसा परमो धर्मः।

 ए) जीवनान्तेपि तव राज्यभंगो नास्ति।

ऐ) उदारचरितानां तू वसुधैव कुटुम्बकम्।

 |।। एकस्य सम्पूर्णतया समाधानं लिखता।   1*8=8

अ) आर्य पादुकाभिषेकः पाठ्यभागस्य सारांशं लिखत।

आ) यक्षप्रश्नानां वैशिष्ठयं लिखत।

|v.एकस्य सम्पूर्णतया समाधानं लिखत।   1*8=8

   अ) मेवाडराज्यस्थापनं वर्णयत।

   आ) विवेकानन्द सूक्तयः इति पाठ्यभागस्य सारांशं लिखत।

V.एकस्य सम्पूर्णतया समाधानं लिखत।   1*8=8

अ) शृगालः कथं लगुडेन मारितः।   ।

आ) वीरवर कथा विशदयता।

 V।)चतुर्णा लघुसमाधानानि लिखत।   4*1=4

अ) श्रीरामःभरतं वीक्षय किमकरोत् ?

आ) श्रीरामः पित्रु मरणवार्तीं निशम्य किं अकरोत् ?

इ) किंस्वित् गुरुतरा भूमेः? किंस्वित्उच्चतरं च खात्?

ई) किं नु हित्वाअर्थवान् भवति? किं नु हित्वाअर्थवान् सुखी भवेत्?

उ) चम्पकवती नाम अरण्यानी कुत्र अस्ति?

ऊ) म्रुगः केन वञ्चितः?

ए) वीरवरस्य पुत्रः कः?

ऐ) पुत्रस्य मरणानन्तरं वीरवरः आलोच्य किं अकरोत् ?

<div align="center">द्वितीयो भागः</div>

VII) द्वयोः शब्दरूपानि सम्पूर्णतया लिखता।   2*3=6

   अ) देव आ) भानु इ) मति ई) रमा

VIII) चतुर्णां नामनिर्देशपूर्वकं सन्धत्ता। 4*1=4

   अ) कपि +ईशः ।   आ) पौ+अकः

   इ) इति+अत्र   ई) तत्+च

   उ) महा+ईशः   ऊ) तथा+एव

   ए) तत्+टीका   ऐ) षट् +मुखः

IX) द्वयोः धातुरूपाणि लिखता   2*3=6

अ) भू- present tense   आ) स्था- Imperative tense

इ) लभ् -past tense   ई) मुद- potential tense

X), चतुर्णां नामनिर्देशपूर्वकं विग्रहवाक्यानि लिखत ।   4*1=4

   अ) ग्रामगतः   आ) अज्ञानम्

   इ) कृष्णसर्पः   ई)पञ्चगवं

   उ) रामकृष्णौ।   ऊ)विन्ध्यपर्वतः

   ए)गोपालबालः   ऐ) पापभयं

DIFFERENTIAL EQUATIONS
SYLLABUS (75 Hours)

Course Outcomes:
1. After successful completion of this course, the student will be
   able to; Solve linear differential equations
2. Convertnonexact homogeneous equations to exact differential equations by using integrating factors.
3. Know the methods of finding solutions ofdifferential equations of the firstorder but not of the firstdegree.
4. Solvehigher-order linear differential equations, both homogeneous and non homogeneous, with constant coefficients.
5. Understand the concept and apply appropriate methods for solving differential equations.

Course Syllabus:

UNIT – I (12 Hours)
Differential Equations of first order and first degree:
Linear Differential Equations; Differential equations reducible to linear form; Exact differential equations; Integrating factors; Change of variables.

UNIT – II (12 Hours)
Orthogonal Trajectories
Differential Equations of first order but not of the first degree:
Equations solvable for *p*; Equations solvable for *y*; Equations solvable for *x*; Equations that do not contain x (or y); Equations homogeneous in x and y;Equations of the first degree in *x* and *y* – Clairaut's Equation.

UNIT – III (12 Hours)
Higher order linear differential equations-I:
Solution of homogeneous linear differential equations of order n with constant coefficients; Solution of the non-homogeneous linear differential equations with constant coefficients by means of polynomial operators.General Solution of f(D)y=0.

General Solution of f(D)y=Q when Q is a function of x, $\dfrac{1}{f(D)}$ is expressed as partial fractions.

P.I. of f(D)y = Q when Q= be^{ax}
P.I. of f(D)y = Q when Q is bsinax or b cos ax.

UNIT – IV (12 Hours)

Higher order linear differential equations-II:

Solution of the non-homogeneous linear differential equations with constant coefficients.

P.I. of $f(D)y = Q$ when $Q = bx^k$

P.I. of $f(D)y = Q$ when $Q = e^{ax}V$ **,** where V is a function of x.

P.I. of $f(D)y = Q$ when $Q = xV$ **,** where V is a function of x.

 of $f(D)y = Q$ when $Q = x^mV$ **,** where V is a function of x.

UNIT –V (12 Hours)

Higher order linear differential equations-III :

Method of variation of parameters; Linear differential Equations with non-constant

coefficients; The Cauchy-Euler Equation, Legendre's linear equations, miscellaneous

differential equations.

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/ Applications of Differential Equations to Real life Problem

/Problem Solving.

Text Book :

Differential Equations and Their Applications by Zafar Ahsan, published by

Prentice-Hall of India Pvt. Ltd, New Delhi-Second edition.

Reference Books :

1. A text book of Mathematics for B.A/B.Sc, Vol 1, by N. Krishna Murthy & others,
   published by S.Chand & Company, New Delhi.

2. Ordinary and Partial Differential Equations by Dr. .D,Raisinghania,published by S.
   Chand & Company, New Delhi.

3. Differential Equations with applications and programs – S. Balachandra Rao & HR
   Anuradha- Universities Press.

4. Differential Equations -Srinivas Vangala & Madhu Rajesh, published by Spectrum
   University Press.

SRI RAMAKRISHNA DEGREE (AUTONOMOUS) COLLEGE::NANDYAL
FIRST SEMESTER MATHEMATICS PAPER-2020-2021
TITLE: DIFFERENTIAL EQUATIONS   Max.Marks:70M

SECTION-A
I.Answer Any FIVE of the following Questions5X 4=20M

1. Solve $(1 + y^2)dx = (\tan^{-1}(y) - x)dy$

2. Solve $x\frac{dy}{dx} + 2y = x^2 \, logx$

3. Show that the family of confocal conics $\frac{x^2}{a^2+\lambda} + \frac{y^2}{b^2+\lambda} = 1$ is self -Orthogonal where λ being parameter

4. Solve $y^2 logy = xyp + p^2$

5. Solve $(D^3 - 5D^2 + 8D - 4)y = e^{2x}$

6. Solve $(D^2 - 4D + 3)y = sin3x.cos2x$

7. Solve $(D^2 + 1)y = secx$ by the method of variation of parameters

8. Solve $(x^2D^2 + xD - 1)y = x^3$

SECTION-B
II.AnswerALL of the following Questions5X10=50M

9. a) Solve $\frac{dy}{dx}(x^3y^3 + xy) = 1$

OR

b).Solve $x\frac{dy}{dx} + y = y^2 \, logx$

10.a) Find the Orthogonal Trajectories of the family of curves $r^n \, cosn\theta = a^n$ where a is the parameter

OR

b) Solve $p^2 + 2py \, cotx = y^2$

11.a) Solve $(D^2 - 4)y = e^x + sin2x + cos^2x$

OR

b) Solve the differential Equation $y'' - 2y' + y = 6xe^x$

12.a) Solve $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = xe^x \, sinx$

OR

b) Solve $(D^2 + 2D + 1)y = x \, cosx$

13. a)Solve $(D^2 + a^2)y = tanax$ by the method of variation of parameters.

OR

b) Solve $[(3x + 2)^2D^2 + 3(3x + 2)D - 36]y = 3x^2 + 4x + 1$

SRI RAMAKRISHNA (AUTONOMOUS) DEGREE COLLEGE, NANDYAL.

I YEAR: Semester – I STATISTICS SYLLABUS

PAPER – I: DESCRIPTIVE STATISTICS & PROBABILITY

UNIT-I

Introduction: Concepts of Primary and Secondary data. Methods of Collection and editing of Primary data. Designing a questionnaire and a schedule. Diagrammatic and graphical representation of data: Histogram, frequency polygon, Ogive, Pie chart. Measures of Central Tendency: Mean, Median, Mode, Geometric Mean and Harmonic Mean.

UNIT-II

Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Variance & Coefficient of Variation with simple applications. Central and Non-Central moments and their interrelationships. Sheppard's correction for moments for grouped data. Skewness and Kurtosis.

UNIT-III

Probability: Basic concepts - Random Experiments, trial, outcome, sample space, event, mutually exclusive and exhaustive events, equally likely and favorable outcomes with examples. Definitions of probability - Mathematical, Statistical and Axiomatic. Conditional probability and independence of events. Addition and multiplication theorems of Probability for 2 and n events. Boole's inequality, Bayes' theorem and Problems based on Bayes theorem. Probability examples (simple problems).

UNIT-IV

Definition of Random variable: Discrete and Continuous random variables, Functions of random variables. Probability mass function, Probability density function and Distribution function and its properties. Bivariate random variables – Meaning, Joint, marginal and conditional distributions. Independence of random variables and simple problems.

UNIT-V

Mathematical Expectation: Mathematical expectation of a random variable and function of a random variable. Moments and covariance using mathematical expectation with examples. Addition and multiplication theorems on expectation. Definitions of M.G.F, C.G.F, C.F and statement of their properties with applications. Chebychev's and Cauchy-Schwartz's inequalities.

SRI RAMAKRISHNA (AUTONOMOUS) DEGREE COLLEGE, NANDYAL.

B.Sc I YEAR: STATISTICS MODEL PAPER

PART - A

Answer any <u>FIVE</u> of the following.   **5 * 4 = 20 M**

1. Define median and give its merits ,demerits.
2. Explain skewness and kurtosis.
3. State and prove multiplication theorem of probability for two events.
4. A bag contains 3 red, 6 white and 7 blue balls. What is the probability that two balls drawn are white and red.
5. Define   a) Probability Mass Function b) Probability Density Function.
6. Find Quartile Deviation to the following data

C.I	0-20	20-40	40-60	60-80	80-100
F	10	25	40	15	10

7. Distinguish between Questionnaire and Schedule.
8. For the following density function
   $f(x) = cx^2(1-x), 0<x<1$
   Find Constant C.

PART - B

Answer ALL THE following Questions.   **5 * 10 = 50 M**

9. (a) Explain the methods of collecting primary and secondary data.

   Or

   (b) Calculate the mode for the following frequency data and also write its merits.

C.I	30-33	34-37	38-41	42-45	46-49	50-53
F	6	9	18	24	16	8

10.(a) Find Coefficient of Variation for the following data.

C.I	0-10	10-20	20-30	30-40	40-50	50-60
F	2	5	10	16	8	5

   Or

   (b) Define central and non-central moments. Derive central momentsinterms of non- central moments.

11. (a) Define m.g.f. and give its properties.

Or

(b) State and prove Chebychev's inequality.

12. (a) State and prove multiplication theorem of probability for n events.

Or

(b) State and prove Boole's Inequality

13. (a) Define random variable and give its properties.

Or

(b) A random variable x has the following probability function.

x	0	1	2	3	4	5	6	7
P(x)	0	K	2k	2k	3k	k^2	$2k^2$	$7k^2 + k$

i)   Find k.
ii)   Evaluate P(x<6) and P(0<x<5)
iii)   Determine the distribution function.

<div align="center">**PROBLEM SOLVING IN C**</div>

Semester	Course Code	Course Title	Hours	Credits
I	C1	**PROBLEM SOLVING IN C**	60	3

Objectives:

This course aims to provide exposure to problem-solving through programming. It introduces the concepts of the C Programming language.

Course Learning Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand the evolution and functionality of a Digital Computer.
2. Apply logical skills to analyse a given problem
3. Develop an algorithm for solving a given problem.
4. Understand 'C' language constructs like Iterative statements, Array processing, Pointers, etc.
5. Apply 'C' language constructs to the algorithms towrite a 'C' language program.

UNIT I
General Fundamentals: Introduction to computers: Block diagram of a computer, characteristics and limitations of computers, applications of computers, types of computers, computer generations.

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms, Flow Charts, Programming Languages – Generations of Programming Languages – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

UNIT II
Introduction to C: Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments –

Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples.

Decision Control and Looping Statements: Introduction to Decision Control Statements– Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

UNIT III

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array– Operations on Arrays – one dimensional, two dimensional and multi dimensional arrays, character handling and strings.

UNIT IV

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions.

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions– Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types.

UNIT V

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.

BOOKS

1. E Balagurusamy – Programming in ANSIC – Tata McGraw-Hill publications.
2. Brain W Kernighan and Dennis M Ritchie - The 'C' Programming language" - Pearson publications.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publications.
4. YashavantKanetkar - Let Us 'C' – BPB Publications.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A.   Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B.   General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,

5. Observation of practical skills,

6. Individual and group project reports like "Creating Text Editor in C".

7. Efficient delivery using seminar presentations,

8. Viva voce interviews.

9. Computerized adaptive testing, literature surveys and evaluations,

10. Peers and self-assessment, outputs form individual and collaborative work

Semester	Course Code	Course Title	Hours	Credits
I	**C1-P**	**PROBLEM SOLVING IN C LAB**	**30**	**2**

Problem solving in C LAB

1. Write a program to check whether the given number is Armstrong or not.
2. Write a program to find the sum of individual digits of a positive integer.
3. Write a program to generate the first n terms of the Fibonacci sequence.
4. Write a program to find both the largest and smallest number in a list of integer values
5. Write a program to demonstrate refection of parameters in swapping of two integer values using **Call by Value**&**Call by Address**
6. Write a program that uses functions to add two matrices.
7. Write a program to calculate factorial of given integer value using recursive functions
8. Write a program for multiplication of twoN X N matrices.
9. Write a program to perform various string operations.
10. Write a program to search an element in a given list of values.
11. Write a program to sort a given list of integers in ascending order.
12. Write a program to calculate the salaries of all employees using *Employee (ID, Name, Designation, Basic Pay, DA, HRA, Gross Salary, Deduction, Net Salary)* structure.
    a. DA is 30 % of Basic Pay
    b. HRA is 15% of Basic Pay
    c. Deduction is 10% of (Basic Pay + DA)
    d. Gross Salary = Basic Pay + DA+ HRA
    e. Net Salary = Gross Salary - Deduction
13. Write a program to illustrate pointer arithmetic.

14. Write a program to read the data character by character from a file.

15. Write a program to create **Book (ISBN, Title, Author, Price, Pages, Publisher)** structure and store book details in a file and perform the following operations

   a. Add book details
   b. Search a book details for a given ISBN and display book details, if available
   c. Update a book details using ISBN
   d. Delete book details for a given ISBN and display list of remaining Books