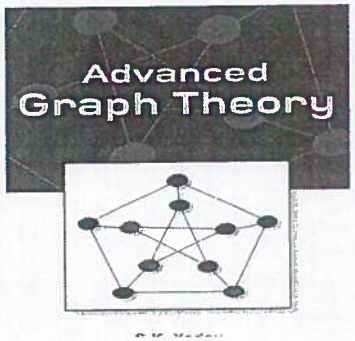
# RISE KRISHNA SAI GANDHI GROUP OF INSTUTIONS:ONGOLE

Certificate program
on
"ADVANCED GRAPH THEORY"




05th **NOVEMBER** 2018 TO 9th **NOVEMBER** 2018

Mr. M. Siva prasanth,
Working as Freelancer Trainer at State Head for Corporate Communication

**ORGANIZED BY**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

PRINCIPAL
RISE KRISHNA SAI GANDHI
GROUP OF INSTITUTIONS
VALLURU:: ONGOLE.

**RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS**
(Approved by AICTE-NEW DELHI, Affiliated to JNTUK KAKINADA)
NH-16, Valluru -523272, Ongole, Prakasam District, A.P, India.

Department of Computer Science and Engineering

Date: 01-11-2018,
Valluru,

To

Mr. M. Siva prasanth,

Freelancer Trainer,

9677879862.

Dear Sir,

Subject: A letter of invitation to conduct a 5-day certificate program on "ADVANCED GRAPH THEORY" - Reg.

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Greetings from RISE Krishna Sai Gandhi Group of Institutions, Ongole

The RISE Institutions started functioning from the academic year 2009-10 and offering undergraduate courses in several engineering branches namely CE,CSE, ECE,.

As per the discussion over phone, I hereby take this opportunity to invite you to take certificate program classes on "ADVANCED GRAPH THEORY" from 05-11-2018 to 09-11-2018.

You are requested to interact and provide guidance to our IICSE B.TechStudents, who are looking forward to their bright career ahead. I will feel honored by your gracious presence at our organization. I believe that your lecture will help our students and faculty members to explore knowledge.

Thanking you in anticipation.

Yours sincerely,

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Principal

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## Department of Computer Science and Engineering

**PROPOSAL FORM**

**SUB :** certificate program on **"ADVANCED GRAPH THEORY"** –Programme

**To the Secretary/Correspondent through Principal for Kind Approval**

| | | |
|---|---|---|
| 1 | Name of the Institution | **RISE Krishna Sai Gandhi Group of Institutions** |
| 2 | Name of the Department | Computer Science and Engineering |
| 3 | Title of the Programme | 5-Day Certificate program |
| 4 | Topic of the Programme | Certificate program on **"ADVANCED GRAPH THEORY"** |
| 5 | Objective of the Programme | To bring the exposure in the recent advancements in the subject |
| 6 | Details of Resource Person(s) & CV Attached. | Mr. M. Siva prasanth,<br>Freelancer Trainer,<br>9677879862. |
| 7 | Proposed Date(S)/Academic Year | 05-11-2018 TO 09-11-2018 |
| 8 | Duration of the Programme | 5Days |
| 9 | Venue | Seminar Hall |
| 10 | Target | II- CSE-1 & II-CSE-2 |
| 11 | Number of Participants | 107 students |
| 12 | Registration Fee | NIL |
| 13 | Name of Programme Coordinator(s) | Mr. CH.HARI KRISHNA |
| 14 | Name of the Students Coordinator(s) | 1. THUNUGUNTA LAKSHMI PRIYA(178B1A0529)<br>2. DESU VENKATA BHARGAVI(178B1A0564) |

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| | | |
|---|---|---|
| | | 3. SHAIK AHMED (178B1A0546)<br>4. ALLA THARUN REDDY( 178B1A0594) |
| 15 | Source of Fund Identified | Management |
| 16 | Management Contribution Required | YES /NO |
| 17 | Name of Budgetary Members | 1. Mr. P.ISAAC PAUL (HOD)<br>2. Mr. CH.HARI KRISHNA(Coordinator) |

SUBMITTED BY

HOD
HEAD OF THE DEPARTMENT
Department of CSE
RISE Krishna Sai Gandhi Group of
nstitutions,VALLUR,A.P.-523 272

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# A FIVE DAY CERTIFICATE PROGRAMME ON "ADVANCED GRAPH THEORY"

**05th – 09th NOV, 2018.**

**Coordinator**

**Mr.CH. HARI KRISHNA**
Asst.Prof.

**Organized by**

**Department of Computer Science & Engineering**

**RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS**

(Approved By AICTE-NEW DELHI, Affiliated To JNTUK KAKINADA)
NH-16, Valluru, Ongole,
Prakasam District, A.P-523272
Phone : +91 99662 72111
mail id : rise_gandhi@yahoo.com

## ORGANIZING COMMITTEE

**Chief Patrons**

**Sri SIDDA. VENKATESWARA RAO**
Chairman

**Sri I.C. RANGAMANNAR**
Hon'ble Chairman

**Sri SIDDA. HANUMANTHA RAO**
Secretary

**Sri SIDDA. BHARATH**
Treasurer

**Patron**

**Prof. Dr. K.V.SUBRAHMANYAM**
M. Tech, Ph. D.,
Principal

**Coordinator**

**Mr.CH. HARI KRISHNA**
Assoc.prof.Dept. of CSE

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## STUDENT REGISTRATION FORM

**Name** : .....

**Gender** : .....

**Department** : .....

**Institution** : .....

**Address for Communication.**

.....

.....

.....

**PIN** :.....

**EMAIL** :.....

**MOBILE NO.** : .....

**About RISE:-**

RISE KRISHNA SAI Gandhi Group of Institutions is located in the outer suburb of the calm town, Ongole in Prakasam district in Andhra Pradesh. RISE KRISHNA SAI GANDHI Group of Institutions offers unparalleled Engineering, Management and Computer Education.

The most competent and dedicated technical and human resources in the campus sharpen students and their skills. They, thereby, shall be sure to make the greatest possible strides both in their career and life!

The Institution was established on 5th October 2009 by RISE which stands for Rural Institute of Social and Economic Empowerment.

The institution is approved by AICTE, New Delhi and Govt. of Andhra Pradesh and is affiliated to Jawaharlal Nehru Technological University, Kakinada (JNTUK).

This world class institute with global standards offers courses at the Undergraduate levelin five areas (CE, ME, EEE, ECE, CSE) ofengineering, at the Post Graduate level in two areas(MBA & MCA)

**About Department:-**

The department of Computer Science and Engineering was established in 2009 with an intake of 60 students in the UG programmer.

The intake was enhanced to 120 in 2010 with highly qualified and experienced faculty and has good infrastructural facilities and is equipped with full-fledged laboratories. The department also has audiovisual facilities with sufficient LCD and OHP's for effective teaching.

The staff members are deputed to participate in workshops, conferences and refresher courses to keep in pace with recent developments in the field of Computer Science & Engineering.

**Objectives of the Programme:-**

Advanced Graph Theory focuses on problem solving using the most important nations of Graph theory with an in-depth study of concepts on the applications in the field of the computer science.

This course provides an in-depth understanding of graphs and fundamental principles and models underlying the theory , algorithms , and proof techniques in the fiels of the Graph Theory.

Course Contents:-

Graph Theory: Introduction Paths, Cycles, and Trails Eulerian Circuits, Vertex Degrees and Counting

The Chinese Postman Problem and Graphic Sequences Trees and Distance Spanning Trees and Enumeration Matchings and covers Independent Sets, Covers and Maximum Bipartite Matching Weighted Bipartite Matching Stable Matchings and Faster Bipartite Matching Factors & Perfect Matching in General Graphs Matching in General Graphs: Edmonds Blossom Algorithm Connectivity and Paths: Cuts and Connectivity k-Connected Graphs Network Flow Problems Vertex Coloring and Upper Bounds Brooks Theorem and Color-Critical Graphs Counting Proper Colorings

Planar Graphs Characterization of Planar Graphs Line Graphs and Edge-coloring Hamiltonian Graph, Traveling Salesman Problem and NP-Completeness

Connected Dominating Set and Distributed Algorithm

- Matching
- Connectivity and edge
- Independence and Coverning
- Labelings
- Perfect Graphs

**Graph Theory challenges Algorithms:-**

- Synchronous Shopping
- Subset component
- Snakes and ladders
- Dijkstra's Algorithm
- Kruskal's MST
- Breadth First Search(Shortest path)

**Resource Person:-**

Mr. M. Siva Prasanth., Working as Freelancer Trainer at State Head for Corporate Communication.

Ph.no: 9677879862.

**Guidelines:-**

No participant fee will be collected.

Session time will be from 9:00AM to 5:00PM.

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NH-16, Valluru -523272, Ongole, Prakasam District, A.P, India.

Department of Computer Science and Engineering

Date: 3-11-2018,
Valluru,

**CIRCULAR**

This is to inform II-B.Tech students and faculty that there will be a 5-Day Certificate program on "ADVANCED GRAPH THEORY" from 5-11-2018 to 9-11-2018 by M. Siva Prasanth, Working as Freelancer Trainer at State Head for Corporate communication.

Professor and HOD
HEAD OF THE DEPARTMENT
Department of CSE
RISE Krishna Sai Gandhi Group of stitutions,VALLUR,A.P.-523 272

Copy to:

Principal

Staff Circular

Students of CSE II year

CSE Department Notice Boards

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## Department of Computer Science & Engineering

## Schedule for "ADVANCED GRAPH THEORY"

| S.No | Date | Time | Topic Covered |
|---|---|---|---|
| 1 | 5-11-2018 | 9.00am to 12.40pm | Graph Theory: Introduction, Paths, Cycles, and Trails |
| | | Lunch | |
| | | 1.20pm to 5.00pm | Eulerian Circuits, Vertex Degrees and Counting |
| 2 | 6-11-2018 | 9.00am to 12.40pm | The Chinese Postman Problem and Graphic Sequences<br>Trees and Distance Spanning Trees and Enumeration |
| | | Lunch | |
| | | 1.20pm to 5.00pm | Matchings and covers Independent Sets, Covers and Maximum Bipartite Matching |
| 3 | 7-11-2018 | 9.00am to 12.40pm | Weighted Bipartite Matching<br>Stable Matchings and Faster Bipartite Matching Factors & Perfect Matching in General Graphs |
| | | Lunch | |
| | | 1.20pm to 5.00pm | Matching in General Graphs: Edmonds Blossom Algorithm Connectivity and Paths: Cuts and Connectivity |
| 4 | 8-11-2018 | 9.00am to 12.40pm | k-Connected Graphs Network Flow Problems Vertex Coloring and Upper Bounds |

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| | | | |
|---|---|---|---|
| | | Lunch | |
| | | 1.20pm to 5.00pm | Brooks Theorem and Color-Critical Graphs Counting Proper Colorings |
| 5 | 9-11-2018 | 9.00am to 12.40pm | Planar Graphs Characterization of Planar Graphs |
| | | Lunch | |
| | | 1.20pm to 5.00pm | Line Graphs and Edge-coloring Hamiltonian Graph, Traveling Salesman Problem and NP-Completeness Connected Dominating Set and Distributed Algorithm |

Coordinator

HOD
HEAD OF THE DEPARTMENT
Department of CSE
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NH-16, Valluru -523272, Ongole, Prakasam District, A.P, India.

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

STUDENT FEED BACK FORM

NAME OF THE STUDENT : K. Akhila

DATE: 09.11.2018

ROLL NO : 178B1A0576

A.Y: 2018 - 2019.

PROGRAMME NAME : Advanced graph theory.

| S.NO | FEED BACK POINTS | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | Is the Programme useful or not? | | | | ✓ | |
| 2 | Is the Programme well planned or not? | | | | ✓ | |
| 3 | Programme makes objectives clear? | | | | | ✓ |
| 4 | Programme speaker speaks clearly and audibly? | | | | ✓ | |
| 5 | Speaker explains with examples clearly? | | | | | ✓ |
| 6 | Is your Doubts clarified or not? | | | | | ✓ |

5-EXCELLENT 4-GOOD 3-AVERAGE 2-POOR 1-NO COMMENT

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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

STUDENT FEED BACK FORM

NAME OF THE STUDENT : B. vinay sai DATE: 9/11/2018
ROLL NO : 17BB1A0534 A.Y: 2018 - 19
PROGRAMME NAME : Advanced Graph theory

| S.NO | FEED BACK POINTS | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | Is the Programme useful or not? | | | | | ✓ |
| 2 | Is the Programme well planned or not? | | | | ✓ | |
| 3 | Programme makes objectives clear? | | | | | ✓ |
| 4 | Programme speaker speaks clearly and audibly? | | | | | ✓ |
| 5 | Speaker explains with examples clearly? | | | | | ✓ |
| 6 | Is your Doubts clarified or not? | | | | | ✓ |

5-EXCELLENT 4-GOOD 3-AVERAGE 2-POOR 1-NO COMMENT

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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### STUDENT FEED BACK FORM

NAME OF THE STUDENT : B Kavya
ROLL NO : 178B1A0508
PROGRAMME NAME : Advanced Graph Theory

DATE: 9/11/2018
A.Y: 2018-19

| S.NO | FEED BACK POINTS | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | Is the Programme useful or not? | | | | | ✓ |
| 2 | Is the Programme well planned or not? | | | | ✓ | |
| 3 | Programme makes objectives clear? | | | | | ✓ |
| 4 | Programme speaker speaks clearly and audibly? | | | | ✓ | |
| 5 | Speaker explains with examples clearly? | | | | | ✓ |
| 6 | Is your Doubts clarified or not? | | | | ✓ | |

5-EXCELLENT 4-GOOD 3-AVERAGE 2-POOR 1-NO COMMENT

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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

STUDENT FEED BACK FORM

NAME OF THE STUDENT : S. Krishna Reddy DATE: 09/11/2018

ROLL NO : 17B31A0550 A.Y: 2018 - 19

PROGRAMME NAME : Advanced Graph Theory

| S.NO | FEED BACK POINTS | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | Is the Programme useful or not? | | | | | ✓ |
| 2 | Is the Programme well planned or not? | | | | ✓ | |
| 3 | Programme makes objectives clear? | | | | ✓ | |
| 4 | Programme speaker speaks clearly and audibly? | | | | | ✓ |
| 5 | Speaker explains with examples clearly? | | | | | ✓ |
| 6 | Is your Doubts clarified or not? | | | | | ✓ |

5-EXCELLENT 4-GOOD 3-AVERAGE 2-POOR 1-NO COMMENT

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NH-16, Valluru-523272, Ongole, Prakasam (Dist), Andhra Pradesh, India

## Department of Computer Science & Engineering

## Certificate program Feedback Analysis

Topic : Certification program on" **ADVANCED GRAPH THEORY**"

Resource Person : Mr.M.Siva prasanth,

Working as Freelancer Trainer at State Head for Corporate communication

Dates : 5-11-2018 To 9-11-2018

Venue : Seminar Hall

Targeted Students : II Year students

| S.No | No. of students Participated | No. of students given feedback | Feedback % |
|---|---|---|---|
| 1 | 107 | 107 | 100% |

Co-ordinator

Head of the Department
Department of CSE
RISE Krishna Sai Gandhi Group of stitutions,VALLUR,A.P.-523 272

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# RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS::ONGOLE

## DEPARTMENT OF COMPUTER SCIENCE

## FEEDBACK ANALYSIS

**A.Y: 2018-2019 Year : II B.Tech CSE** **Date: 9-11-2018**

**Certificate Program on "ADVANCED GRAPH THEORY"**

| S.No | Roll Number | Name | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1 | 178B1A0501 | ABBURI MOUNIKA | 4 | 4 | 5 | 4 | 4 | 5 |
| 2 | 178B1A0502 | ANKIREDDY KRISHNA PRAVALLIKA | 5 | 4 | 4 | 5 | 5 | 4 |
| 3 | 178B1A0503 | ANKIREDDY NARMADA | 4 | 4 | 5 | 4 | 4 | 5 |
| 4 | 178B1A0504 | ATTULURI ALEKHYA | 4 | 5 | 5 | 5 | 5 | 4 |
| 5 | 178B1A0505 | BHAVANAM LAKSHMI SINDHU | 4 | 4 | 4 | 4 | 5 | 5 |
| 6 | 178B1A0506 | BOGALA VASUNDHARA | 5 | 4 | 5 | 4 | 5 | 5 |
| 7 | 178B1A0507 | BOJJA RADHIKA | 5 | 4 | 5 | 4 | 5 | 4 |
| 8 | 178B1A0508 | BOYAPATI KAVYA | 4 | 5 | 4 | 5 | 5 | 5 |
| 9 | 178B1A0509 | CHALUVADI LAKSHMI MAYUKHA | 4 | 4 | 5 | 4 | 4 | 4 |
| 10 | 178B1A0510 | CHINTHAM SRUTHI | 5 | 5 | 5 | 4 | 4 | 5 |
| 11 | 178B1A0511 | DANDA ASHA REDDY | 4 | 4 | 5 | 5 | 5 | 5 |
| 12 | 178B1A0512 | GANGAVARAPU POOJITHA | 4 | 5 | 4 | 5 | 5 | 4 |
| 13 | 178B1A0513 | GANGULA SANDHYA RANI | 4 | 4 | 5 | 5 | 5 | 5 |
| 14 | 178B1A0514 | GODASU SRIVANI | 5 | 5 | 5 | 5 | 5 | 5 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 15 | 178B1A0515 | GUGGILAM RAHITYA PREETHI | 4 | 5 | 4 | 5 | 5 | 5 |
| 16 | 178B1A0516 | INAGANTI ARCHANA | 4 | 4 | 5 | 4 | 5 | 4 |
| 17 | 178B1A0517 | INTHA PRAVALLIKA | 4 | 5 | 5 | 4 | 4 | 5 |
| 18 | 178B1A0518 | JINKALA LAVANYA | 5 | 4 | 4 | 5 | 4 | 5 |
| 19 | 178B1A0519 | KALIKI HIMAJA | 4 | 5 | 5 | 4 | 5 | 4 |
| 20 | 178B1A0520 | KANCHARLA VYSHNAVI | 4 | 4 | 5 | 5 | 5 | 5 |
| 21 | 178B1A0521 | MAMIDI LAKSHMI VASAVI | 4 | 5 | 5 | 4 | 5 | 5 |
| 22 | 178B1A0522 | MANDAVA PRAVALLIKA | 4 | 4 | 5 | 5 | 5 | 5 |
| 23 | 178B1A0523 | MULE LAKSHMI TRIVENI | 5 | 5 | 4 | 5 | 5 | 4 |
| 24 | 178B1A0524 | PAPAREDDY MANASWINI | 4 | 5 | 5 | 4 | 5 | 5 |
| 25 | 178B1A0525 | PONNAPATI SANTHI | 5 | 4 | 5 | 5 | 4 | 4 |
| 26 | 178B1A0526 | POTHINENI VENKATA SUSHMA | 5 | 5 | 4 | 5 | 5 | 5 |
| 27 | 178B1A0527 | PUCHA VENKATA SRAVANI | 5 | 4 | 5 | 5 | 4 | 4 |
| 28 | 178B1A0528 | THUMATI SRI SWATHI PRIYA | 5 | 5 | 5 | 4 | 4 | 5 |
| 29 | 178B1A0529 | THUNUGUNTA LAKSHMI PRIYA | 5 | 5 | 5 | 4 | 4 | 5 |
| 30 | 178B1A0530 | VANDAVASI PRASANNA LAKSHMI | 4 | 5 | 5 | 5 | 4 | 4 |
| 31 | 178B1A0531 | VASANTHA VENKATA DIVYA | 5 | 4 | 5 | 4 | 5 | 5 |
| 32 | 178B1A0533 | BALASANI ANAND | 5 | 4 | 4 | 5 | 5 | 5 |
| 33 | 178B1A0534 | BOKKISAM VINAY SAI | 5 | 4 | 5 | 5 | 5 | 5 |
| 34 | 178B1A0535 | KADIYALA SAI KUMAR | 5 | 5 | 5 | 5 | 5 | 4 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 35 | 178B1A0536 | KANDIMALLA SAI KRISHNA | 5 | 4 | 4 | 4 | 4 | 5 |
| 36 | 178B1A0537 | KOLASANI ANKA BABU | 5 | 5 | 5 | 5 | 5 | 5 |
| 37 | 178B1A0538 | KOLLA MAHENDRA BABU | 5 | 4 | 5 | 4 | 4 | 5 |
| 38 | 178B1A0539 | KOTHAPALLI SANDEEP | 5 | 4 | 5 | 5 | 5 | 4 |
| 39 | 178B1A0541 | MOTUPALLI SUDHEER | 5 | 5 | 4 | 4 | 4 | 5 |
| 40 | 178B1A0542 | PATURI VEERA VASANTHA KUMAR | 4 | 4 | 5 | 4 | 5 | 5 |
| 41 | 178B1A0543 | PETTUGANI VENKATA DHANUSH | 5 | 5 | 5 | 5 | 5 | 4 |
| 42 | 178B1A0544 | POTHURI SUDHEER KUMAR | 5 | 4 | 5 | 4 | 5 | 5 |
| 43 | 178B1A0545 | PUVVADI BALA KRISHNA | 5 | 5 | 4 | 4 | 4 | 5 |
| 44 | 178B1A0546 | SHAIK AHMED | 5 | 5 | 4 | 5 | 4 | 5 |
| 45 | 178B1A0547 | SHAIK ANMIR | 5 | 4 | 4 | 4 | 5 | 4 |
| 46 | 178B1A0548 | SIDDABATTULA AKHIL | 4 | 5 | 4 | 5 | 4 | 5 |
| 47 | 178B1A0549 | SUDALAGUNTA VENKATA VINAY | 5 | 4 | 4 | 4 | 5 | 5 |
| 48 | 178B1A0550 | SYAMALA KRISHNA REDDY | 5 | 4 | 4 | 5 | 5 | 5 |
| 49 | 178B1A0551 | THOTAPALLI VENKATA SAIRAMA AYACHYA | 5 | 5 | 5 | 4 | 5 | 5 |
| 50 | 178B1A0552 | TUMMALA SRIKANTH | 5 | 4 | 5 | 4 | 4 | 5 |
| 51 | 178B1A0553 | TUMUKURI CHANDRA SEKHAR | 5 | 4 | 5 | 4 | 5 | 4 |
| 52 | 178B1A0554 | UPPALA SIVA PRASAD | 4 | 5 | 5 | 5 | 4 | 5 |
| 53 | 178B1A0555 | VEMA BHUVANA VENKATA LAKSHMANA DATTA SAI | 5 | 4 | 5 | 4 | 5 | 5 |
| 54 | 178B1A0556 | ALLA RAGAVALLIKA | 5 | 5 | 5 | 5 | 4 | 5 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 55 | 178B1A0557 | BAIREDDY ANITHALAKSHMI | 5 | 5 | 4 | 5 | 5 | 5 |
| 56 | 178B1A0558 | BATTULA LAKSHMI PRASANNA | 5 | 5 | 5 | 4 | 5 | 4 |
| 57 | 178B1A0559 | BHIMAVARAPU LAVANYA | 5 | 4 | 5 | 5 | 5 | 4 |
| 58 | 178B1A0560 | BOLLEDDULA RAMYA | 5 | 5 | 5 | 4 | 5 | 5 |
| 59 | 178B1A0561 | CHEBROLU VENKATA SUSHMA | 5 | 4 | 4 | 4 | 5 | 5 |
| 60 | 178B1A0562 | CHINNI NAGA YASASWINI | 5 | 5 | 5 | 5 | 5 | 5 |
| 61 | 178B1A0563 | DACHARLA KALYANI | 4 | 4 | 5 | 5 | 4 | 4 |
| 62 | 178B1A0564 | DESU VENKATA BHARGAVI | 5 | 4 | 5 | 5 | 5 | 5 |
| 63 | 178B1A0565 | DUVVURI POOJITHA | 5 | 4 | 5 | 4 | 5 | 5 |
| 64 | 178B1A0566 | GODUGULURI SAI PRASANNA | 5 | 4 | 5 | 5 | 5 | 5 |
| 65 | 178B1A0567 | GUNUPUDI SASI NAGAMANI | 5 | 4 | 5 | 4 | 5 | 5 |
| 66 | 178B1A0568 | INUKOLLU MOUNIKA | 5 | 4 | 5 | 4 | 5 | 5 |
| 67 | 178B1A0569 | KAKOLLU VENKATA MADHUMITHA LAKSHMI | 5 | 4 | 5 | 4 | 5 | 5 |
| 68 | 178B1A0570 | KAMANI SAI HARSHITHA | 5 | 4 | 4 | 4 | 5 | 5 |
| 69 | 178B1A0571 | KANCHARLA MOUNIKA | 5 | 5 | 5 | 4 | 5 | 5 |
| 70 | 178B1A0573 | KASATTY YAMINI | 5 | 5 | 5 | 5 | 5 | 5 |
| 71 | 178B1A0574 | KOPPARTHI VIJAYALAKSHMI | 5 | 5 | 5 | 4 | 5 | 5 |
| 72 | 178B1A0575 | KOTHAGUNDU VENKATA LAKSHMI NAGA SAI MANIDURGANJANI | 5 | 4 | 4 | 4 | 5 | 5 |
| 73 | 178B1A0576 | KOTHAPALLI AKHILA | 4 | 4 | 5 | 4 | 5 | 5 |
| 74 | 178B1A0577 | KURAPATI SRI BHARGAVI | 4 | 5 | 5 | 5 | 5 | 5 |

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|---|---|---|---|---|---|---|---|---|
| 75 | 178B1A0578 | KURAPATI VENKATA DURGA BINDU SRI | 5 | 5 | 5 | 4 | 5 | 5 |
| 76 | 178B1A0579 | LAKSHMI ADUSUMALLI | 5 | 4 | 5 | 5 | 5 | 5 |
| 77 | 178B1A0580 | MULLAMURI SREELAKSHMI | 5 | 5 | 5 | 5 | 5 | 5 |
| 78 | 178B1A0581 | MUPPARAJU SIVA PARVATHI | 5 | 4 | 5 | 4 | 5 | 5 |
| 79 | 178B1A0582 | NALLURI KAVYA | 5 | 5 | 5 | 4 | 5 | 4 |
| 80 | 178B1A0583 | NALLURI PRABHAVATHI | 5 | 4 | 4 | 4 | 5 | 5 |
| 81 | 178B1A0584 | PERLA NAGA VENKATA SAI TEJASWI | 5 | 4 | 5 | 5 | 5 | 4 |
| 82 | 178B1A0585 | SHAIK MAHAJABEEN | 5 | 5 | 5 | 4 | 4 | 5 |
| 83 | 178B1A0586 | SOMISETTI THIRUMALA | 5 | 5 | 5 | 5 | 5 | 5 |
| 84 | 178B1A0587 | TATA SUMANJANI | 4 | 5 | 5 | 5 | 4 | 5 |
| 85 | 178B1A0588 | THATHA VENKATA TEJASWINI | 4 | 5 | 5 | 4 | 5 | 4 |
| 86 | 178B1A0589 | THOTA SASIREKHA | 5 | 4 | 4 | 5 | 5 | 5 |
| 87 | 178B1A0591 | VADDEMPUDI JYOTHIKA | 4 | 5 | 5 | 4 | 5 | 5 |
| 88 | 178B1A0592 | VAKA DHARANI | 5 | 5 | 5 | 4 | 5 | 5 |
| 89 | 178B1A0593 | YENIMIREDDY MOUNIKA | 4 | 5 | 5 | 5 | 5 | 5 |
| 90 | 178B1A0594 | ALLA THARUN REDDY | 5 | 5 | 5 | 5 | 4 | 4 |
| 91 | 178B1A0595 | BASU CHANDRASEKHARA REDDY | 4 | 5 | 4 | 4 | 4 | 5 |
| 92 | 178B1A0596 | CHANDOLU SIVA GIREESH KUMAR | 5 | 5 | 5 | 5 | 5 | 4 |
| 93 | 178B1A0597 | CHEEMAKURTHY SAI CHARAN REDDY | 4 | 5 | 5 | 4 | 4 | 4 |
| 94 | 178B1A0598 | GUDURI POUL | 5 | 4 | 5 | 5 | 5 | 4 |

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|---|---|---|---|---|---|---|---|---|
| 95 | 178B1A0599 | KARANAM SRINIVASULU | 5 | 5 | 5 | 5 | 4 | 5 |
| 96 | 178B1A05A0 | MADDI NAGA KOTI DINESH | 5 | 5 | 5 | 5 | 5 | 5 |
| 97 | 178B1A05A1 | MANAM BALANJANAYULU | 4 | 5 | 5 | 5 | 4 | 5 |
| 98 | 178B1A05A2 | PANCHALA SREENIVASARAO | 4 | 5 | 5 | 5 | 5 | 4 |
| 99 | 178B1A05A3 | PUNATI SAIKIRAN | 5 | 4 | 4 | 5 | 5 | 5 |
| 100 | 178B1A05A4 | PUSAPATI SHANMUKA SAI PAVAN | 4 | 5 | 5 | 4 | 4 | 5 |
| 101 | 178B1A05A5 | RAVIPATI VENKATA SAI TEJA | 5 | 5 | 5 | 5 | 5 | 5 |
| 102 | 178B1A05A6 | SIKAKOLLU VIVEK | 4 | 5 | 5 | 5 | 5 | 5 |
| 103 | 178B1A05A7 | SINGAMANENI VAMSI KRISHNA | 5 | 4 | 5 | 5 | 4 | 4 |
| 104 | 178B1A05A8 | TELLA SAGAR | 4 | 5 | 4 | 5 | 4 | 4 |
| 105 | 178B1A05A9 | THATHA BHARATH NAGA VISHNU DEEPU | 5 | 5 | 5 | 5 | 4 | 5 |
| 106 | 178B1A05B0 | VEMIREDDY OM MADHAVA REDDY | 4 | 4 | 5 | 4 | 4 | 4 |
| 107 | 188B5A0501 | DASI PRASANNA | 4 | 4 | 5 | 4 | 5 | 4 |
| | | | 4.65 | 4.52 | 4.76 | 4.51 | 4.69 | 4.71 |
| | | | 93.08 | 90.47 | 95.14 | 90.28 | 93.83 | 94.21 |
| | | | 92.83 | | | | | |

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**Department of Computer Science & Engineering**

# Certificate Program on "ADVANCED GRAPH THEORY"
## Model Question Paper

---

Roll No A.Y:2018-2019

Student Name Branch/Sem: II CSE/I SEM

1.A graph is a tree if and only if it [ ]

(A) is completely connected
(B) is planar
(C) contains a act
(D) is minimally connected

2.Tree [ ]
(A) is a connected graph
(B) with n nodes contains n – 1 edges
(C) is a bipartite graph
(D) all of these

3.The number of paths between any pair of nodes in a tree on n nodes is [ ]
(A) o
(B) 1
(C) (n – 1)
(D) n

4.A graph G with n nodes is bipartite if it contains [ ]
(A) $n^2$ edges
(B) n edges
(C) a cycle of odd length
(D) no cycle of odd length

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5.A tree with n nodes has [ ]
(A) n/2 edges
(B) n edges
(C) n – 1 edges
(D) n + 1 edges

6.Which of the following algorithms solves the all pair shortest path problem? [ ]
(A) Floyd's algorithm
(B) Dijkstra's algorithm
(C) Warshall's algorithm
(D) Prim's algorithm

7.What transversal techniques list the nodes of a binary search tree in ascending order? [ ]
(A) Pre-order
(B) Post order
(C) In-order
(D) None of these

8.A complete binary tree with the property that the values of each node is at least as large as the values at its children is called [ ]
(A) AVL tree
(B) Binary search tree
(C) Heap
(D) Completely balanced tree

9.A circuit in a connected graph which includes every vertex of the graph is called [ ]
(A) Hamilton
(B) Cheque
(C) Universal
(D) Euler

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10.Which data structure is needed to convert infix notation to post fix notation? [ ]
(A) Queue
(B) Linear list
(C) Stack
(D) Tree

11.A graph in which all nodes are of equal degree is called [ ]
(A) Regular graph
(B) Multigraph
(C) Non regular graph
(D) Complete graph

12.A simple graph in which there exists an edge between every pair of vertices is called [ ]
(A) Eular graph
(B) Complete graph
(C) Planner graph
(D) Incomplete graph

13.Which of the following sorting method is stable? [ ]
(A) Straight insertion sort
(B) Heap sort
(C) Shell sort
(D) Binary insertion sort

14.Preorder is nothing but [ ]
(A) Linear order
(B) Topological order
(C) Breadth first order
(D) Depth first order

15.In which tree, for every node the height of its left sub tree and right sub tree differ at least by one? [ ]
(A) Threaded binary tree
(B) Binary search tree

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(C) Complete tree
(D) AVL tree

16.The terminal vertices of a path are of degree [ ]
(A) Zero
(B) One
(C) Two
(D) More than four

17.A graph with n vertices and n - 1 edges that is not a tree, is
(A) A circuit [ ]
(B) Euler
(C) Connected
(D) Disconnected

18.What is the true complexity of linear search algorithm over an array of n element? [ ]
(A) 0 (n)
(B) $O(n / \log_2 n)$
(C) $O(n^2)$
(D) $(\log_2 n)$

19.A vertex of degree one is called [ ]
(A) Colored vertex
(B) Null vertex
(C) Pendent
(D) Isolated vertex

20.A full binary tree with n leaves contains [ ]
(A) n nodes
(B) $\log_2 n$ nodes
(C) $2^{n+1}$ nodes
(D) $2^n$

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**KEY :**

1. is minimally connected
2. all of these
3. 1
4. no cycle of odd length
5. n – 1 edges
6. Floyd's algorithm
7. In-order
8. Heap
9. Hamilton
10. Linear list
11. Regular Graph
12. Complete graph
13. Straight insertion sort
14. Depth first order
15. AVL tree
16. One
17. Disconnected
18. 0 (n)
19. Pendent
20. $2^{n+1}$ nodes

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**Department of Computer Science & Engineering**

# Certificate Program on "ADVANCED GRAPH THEORY"
## Model Question Paper

---

Roll No 178B1A0503. A.Y:2018-2019

Student Name A. Narmada. Branch/Sem: II CSE/I SEM

1.A graph is a tree if and only if it [d] ✓

(A) is completely connected
(B) is planar
(C) contains a act
(D) is minimally connected

19/20

2.Tree [d] ✓
(A) is a connected graph
(B) with n nodes contains n – 1 edges
(C) is a bipartite graph
(D) all of these

3.The number of paths between any pair of nodes in a tree on n nodes is [b] ✓
(A) o
(B) 1
(C) (n – 1)
(D) n

4.A graph G with n nodes is bipartite if it contains [d] ✓
(A) $n^2$ edges
(B) n edges
(C) a cycle of odd length
(D) no cycle of odd length

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5.A tree with n nodes has [C]
(A) n/2 edges
(B) n edges
(C) n – 1 edges
(D) n + 1 edges

6.Which of the following algorithms solves the all pair shortest path problem? [A]
(A) Floyd's algorithm
(B) Dijkstra's algorithm
(C) Warshall's algorithm
(D) Prim's algorithm

7.What transversal techniques list the nodes of a binary search tree in ascending order? [C]
(A) Pre-order
(B) Post order
(C) In-order
(D) None of these

8.A complete binary tree with the property that the values of each node is at least as large as the values at its children is called [C]
(A) AVL tree
(B) Binary search tree
(C) Heap
(D) Completely balanced tree

9.A circuit in a connected graph which includes every vertex of the graph is called [A]
(A) Hamilton
(B) Cheque
(C) Universal
(D) Euler

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10.Which data structure is needed to convert infix notation to post fix notation? [B]
(A) Queue
(B) Linear list
(C) Stack
(D) Tree

11.A graph in which all nodes are of equal degree is called [A]
(A) Regular graph
(B) Multigraph
(C) Non regular graph
(D) Complete graph

12.A simple graph in which there exists an edge between every pair of vertices is called [B]
(A) Eular graph
(B) Complete graph
(C) Planner graph
(D) Incomplete graph

13.Which of the following sorting method is stable? [A]
(A) Straight insertion sort
(B) Heap sort
(C) Shell sort
(D) Binary insertion sort

14.Preorder is nothing but [D]
(A) Linear order
(B) Topological order
(C) Breadth first order
(D) Depth first order

15.In which tree, for every node the height of its left sub tree and right sub tree differ at least by one? [D]
(A) Threaded binary tree
(B) Binary search tree

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(C) Complete tree
(D) AVL tree

16.The terminal vertices of a path are of degree [B] ✓
(A) Zero
(B) One
(C) Two
(D) More than four

17.A graph with n vertices and n - 1 edges that is not a tree, is
(A) A circuit [D] ✓
(B) Euler
(C) Connected
(D) Disconnected

18.What is the true complexity of linear search algorithm over an array of n element? [B] ✗
(A) 0 (n)
(B) $O(n / \log_2 n)$
(C) $O(n^2)$
(D) $(\log_2 n)$

19.A vertex of degree one is called [C] ✓
(A) Colored vertex
(B) Null vertex
(C) Pendent
(D) Isolated vertex

20.A full binary tree with n leaves contains [C] ✓
(A) n nodes
(B) $\log_2$ n nodes
(C) $2^{n+1}$ nodes
(D) $2^n$

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**KEY :**

1. is minimally connected
2. all of these
3. 1
4. no cycle of odd length
5. n – 1 edges
6. Floyd's algorithm
7. In-order
8. Heap
9. Hamilton
10. Linear list
11. Regular Graph
12. Complete graph
13. Straight insertion sort
14. Depth first order
15. AVL trcc
16. One
17. Disconnected
18. 0 (n)
19. Pendent
20. $2^{n+1}$ nodes

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## DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

BRANCH:CSE-I
YEAR : II-I

Academic year:2018-19

CERTIFICATE PROGRAM ON "ADVANCED GRAPH THEORY"

### STUDENT ASSESSMENT SHEET

| S.NO | ROLL NUMBERS | NAME OF THE STUDENT | MARKS |
|---|---|---|---|
| 1 | 178B1A0501 | ABBURI MOUNIKA | 17 |
| 2 | 178B1A0502 | ANKIREDDY KRISHNA PRAVALLIKA | 18 |
| 3 | 178B1A0503 | ANKIREDDY NARMADA | 19 |
| 4 | 178B1A0504 | ATTULURI ALEKHYA | 20 |
| 5 | 178B1A0505 | BHAVANAM LAKSHMI SINDHU | 17 |
| 6 | 178B1A0506 | BOGALA VASUNDHARA | 17 |
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| 11 | 178B1A0511 | DANDA ASHA REDDY | 18 |
| 12 | 178B1A0512 | GANGAVARAPU POOJITHA | 16 |
| 13 | 178B1A0513 | GANGULA SANDHYA RANI | 17 |
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| 15 | 178B1A0515 | GUGGILAM RAHITYA PREETHI | 18 |
| 16 | 178B1A0516 | INAGANTI ARCHANA | 17 |
| 17 | 178B1A0517 | INTHA PRAVALLIKA | 17 |
| 18 | 178B1A0518 | JINKALA LAVANYA | 18 |
| 19 | 178B1A0519 | KALIKI HIMAJA | 19 |
| 20 | 178B1A0520 | KANCHARLA VYSHNAVI | 19 |
| 21 | 178B1A0521 | MAMIDI LAKSHMI VASAVI | 20 |
| 22 | 178B1A0522 | MANDAVA PRAVALLIKA | 17 |
| 23 | 178B1A0523 | MULE LAKSHMI TRIVENI | 17 |
| 24 | 178B1A0524 | PAPAREDDY MANASWINI | 18 |
| 25 | 178B1A0525 | PONNAPATI SANTHI | 17 |

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| 27 | 178B1A0527 | PUCHA VENKATA SRAVANI | 17 |
| 28 | 178B1A0528 | THUMATI SRI SWATHI PRIYA | 18 |
| 29 | 178B1A0529 | THUNUGUNTA LAKSHMI PRIYA | 17 |
| 30 | 178B1A0530 | VANDAVASI PRASANNA LAKSHMI | 17 |
| 31 | 178B1A0531 | VASANTHA VENKATA DIVYA | 18 |
| 32 | 178B1A0533 | BALASANI ANAND | 18 |
| 33 | 178B1A0534 | BOKKISAM VINAY SAI | 19 |
| 34 | 178B1A0535 | KADIYALA SAI KUMAR | 19 |
| 35 | 178B1A0536 | KANDIMALLA SAI KRISHNA | 20 |
| 36 | 178B1A0537 | KOLASANI ANKA BABU | 18 |
| 37 | 178B1A0538 | KOLLA MAHENDRA BABU | 17 |
| 38 | 178B1A0539 | KOTHAPALLI SANDEEP | 16 |
| 39 | 178B1A0541 | MOTUPALLI SUDHEER | 19 |
| 40 | 178B1A0542 | PATURI VEERA VASANTHA KUMAR | 19 |
| 41 | 178B1A0543 | PETTUGANI VENKATA DHANUSH | 18 |
| 42 | 178B1A0544 | POTHURI SUDHEER KUMAR | 18 |
| 43 | 178B1A0545 | PUVVADI BALA KRISHNA | 19 |
| 44 | 178B1A0546 | SHAIK AHMED | 18 |
| 45 | 178B1A0547 | SHAIK ANMIR | 19 |
| 46 | 178B1A0548 | SIDDABATTULA AKHIL | 19 |
| 47 | 178B1A0549 | SUDALAGUNTA VENKATA VINAY | 17 |
| 48 | 178B1A0550 | SYAMALA KRISHNA REDDY | 18 |
| 49 | 178B1A0551 | T VENKATA SAIRAMA AYACHYA | 17 |
| 50 | 178B1A0552 | TUMMALA SRIKANTH | 18 |
| 51 | 178B1A0553 | TUMUKURI CHANDRA SEKHAR | 18 |
| 52 | 178B1A0554 | UPPALA SIVA PRASAD | 19 |
| 53 | 178B1A0555 | V B VENKATA LAKSHMANA DATTA SAI | 17 |

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## DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

**BRANCH:CSE-II**
**YEAR : II-I**

**Academic year:2018-19**

**Certificate program on "ADVANCED GRAPH THEORY"**

### STUDENT ASSESSMENT SHEET

| S.NO | ROLL NUMBERS | NAME OF THE STUDENT | MARKS |
|---|---|---|---|
| 1 | 178B1A0556 | ALLA RAGAVALLIKA | 17 |
| 2 | 178B1A0557 | BAIREDDY ANITHALAKSHMI | 19 |
| 3 | 178B1A0558 | BATTULA LAKSHMI PRASANNA | 18 |
| 4 | 178B1A0559 | BHIMAVARAPU LAVANYA | 18 |
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| 11 | 178B1A0566 | GODUGULURI SAI PRASANNA | 18 |
| 12 | 178B1A0567 | GUNUPUDI SASI NAGAMANI | 19 |
| 13 | 178B1A0568 | INUKOLLU MOUNIKA | 19 |
| 14 | 178B1A0569 | KAKOLLU VENKATA MADHUMITHA LAKSHMI | 19 |
| 15 | 178B1A0570 | KAMANI SAI HARSHITHA | 18 |
| 16 | 178B1A0571 | KANCHARLA MOUNIKA | 18 |
| 17 | 178B1A0573 | KASATTY YAMINI | 19 |
| 18 | 178B1A0574 | KOPPARTHI VIJAYALAKSHMI | 19 |
| 19 | 178B1A0575 | KOTHAGUNDU VENKATA LAKSHMI NAGA SAI MANIDURGANJANI | 18 |
| 20 | 178B1A0576 | KOTHAPALLI AKHILA | 19 |
| 21 | 178B1A0577 | KURAPATI SRI BHARGAVI | 19 |
| 22 | 178B1A0578 | KURAPATI VENKATA DURGA BINDU SRI | 18 |
| 23 | 178B1A0579 | LAKSHMI ADUSUMALLI | 18 |
| 24 | 178B1A0580 | MULLAMURI SREELAKSHMI | 19 |
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| 27 | 178B1A0583 | NALLURI PRABHAVATHI | 18 |
| 28 | 178B1A0584 | PERLA NAGA VENKATA SAI TEJASWI | 17 |
| 29 | 178B1A0585 | SHAIK MAHAJABEEN | 18 |
| 30 | 178B1A0586 | SOMISETTI THIRUMALA | 19 |
| 31 | 178B1A0587 | TATA SUMANJANI | 19 |
| 32 | 178B1A0588 | THATHA VENKATA TEJASWINI | 18 |
| 33 | 178B1A0589 | THOTA SASIREKHA | 18 |
| 34 | 178B1A0590 | UPPALA GEETHA SARANYA | 17 |
| 35 | 178B1A0591 | VADDEMPUDI JYOTHIKA | 19 |
| 36 | 178B1A0592 | VAKA DHARANI | 19 |
| 37 | 178B1A0593 | YENIMIREDDY MOUNIKA | 18 |
| 38 | 178B1A0594 | ALLA THARUN REDDY | 19 |
| 39 | 178B1A0595 | BASU CHANDRASEKHARA REDDY | 17 |
| 40 | 178B1A0596 | CHANDOLU SIVA GIREESH KUMAR | 18 |
| 41 | 178B1A0597 | CHEEMAKURTHY SAI CHARAN REDDY | 19 |
| 42 | 178B1A0598 | GUDURI POUL | 19 |
| 43 | 178B1A0599 | KARANAM SRINIVASULU | 18 |
| 44 | 178B1A05A0 | MADDI NAGA KOTI DINESH | 19 |
| 45 | 178B1A05A1 | MANAM BALANJANAYULU | 18 |
| 46 | 178B1A05A2 | PANCHALA SREENIVASARAO | 18 |
| 47 | 178B1A05A3 | PUNATI SAIKIRAN | 17 |
| 48 | 178B1A05A4 | PUSAPATI SHANMUKA SAI PAVAN | 19 |
| 49 | 178B1A05A5 | RAVIPATI VENKATA SAI TEJA | 20 |
| 50 | 178B1A05A6 | SIKAKOLLU VIVEK | 19 |
| 51 | 178B1A05A7 | SINGAMANENI VAMSI KRISHNA | 19 |
| 52 | 178B1A05A8 | TELLA SAGAR | 20 |
| 53 | 178B1A05A9 | THATHA BHARATH NAGA VISHNU DEEPU | 18 |
| 54 | 178B1A05B0 | VEMIREDDY OM MADHAVA REDDY | 18 |
| 55 | 188B5A0501 | DASI PRASANNA | 18 |

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# REPORT OF THE CERTIFICATE PROGRAM

## "Advanced Graph Theory"

## ON

## 05-11-2018 TO 09-11-2018

**Organized by the Department of CSE**

**Target Audience: II CSE**

## 1. Introduction

One week Certificate program on "ADVANCED GRAPH THEORY" was organized by the Department of Computer Science & Engineering, Rise Krishna Sai Gandhi Group of Institutions , Ongole, from 05th November to 9th November 2018(duration 05 days).

The participants were students from I[st] Semester CSE department of RGAN. Around 107 Students registered and successfully completed the certificate program . The speakers were the faculties from Computer Science and Engineering department Mr.P.Isaac paul., and Mr. ch.hari krishna.

The Certificate program was inaugurated on 05th November 2018 Mr.P.Isaac paul., Head of the department Computer Science Engineering and . The valedictory was held on 09th November 2018. Mr. Ch.hari krishna , Asst. Prof. from CSE coordinated the Course. All the resource persons were invited and were present for both inauguration and valedictory.

**Certificate program trainer:-**

Mr. M. Siva prasanth , Working as Freelancer Trainer at State Head for Corporate communication

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GROUP OF INSTITUTIONS
VALLURU, ONGOLE

**RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS**
(Approved by AICTE-NEW DELHI, Affiliated to JNTUK KAKINADA)
NH-16, Valluru -523272, Ongole, Prakasam District, A.P, India.

**OUTCOME OF THE CERTIFICATE PROGRAM:**

The topics covered in the course provide students understand the features of "ADVANCED GRAPH THEORY" so that they can improve their coding skills. During the course of the workshop the resource persons ensured that a number of real world applications are solved. Many assignments were given and discussed that helped the students prepare for their placements and other competitive exams. It also boosted the student's confidence in taking up projects.

**TOPIC**

Graph Theory:

- Introduction to Graphs.
- Its applications.

Paths, Cycles, and Trails:

- Basics of Paths
- Cycles, and Trails
- Connection
- Bipartite Graphs

Eulerian Circuits:

- Vertex Degrees and Counting
- Degree-sum formula
- The Chinese Postman Problem

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Eulerian Circuits:

- Vertex Degrees and Counting
- Degree-sum formula
- The Chinese Postman Problem
- Graphic Sequences

Trees and Distance:

- Properties of Trees
- Spanning Trees
- Enumeration
- Matrix-tree computation
- Cayley's Formula
- Prufer code

Matchings and Covers:

- Hall's Condition
- Min-Max Theorem
- Independent Sets
- Covers
- Maximum Bipartite Matching
- Augmenting Path Algorithm

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Weighted Bipartite Matching:
- Hungarian Algorithm
- Stable Matchings
- Faster Bipartite Matching

Factors & Perfect Matching in General Graphs:
- Matching in General Graphs
- Edmonds' Blossom Algorithm

Connectivity and Paths:
- Cuts and Connectivity
- k-Connected Graphs

Network Flow Problems:
- Ford-Fulkerson Labeling Algorithm
- Max-Flow Min-cut Theorem
- Menger's Proof using Max-Flow Min-Cut Theorem

Coordinator

HOD
HEAD OF THE DEPARTMENT
Department of CSE
RISE Krishna Sai Gandhi Group of
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# RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS:: ONGOLE

(APPROVED BY AICTE-NEW DELHI, AFFILIATED TO JNTUK KAKINADA)
NH-16, Valluru-523272, Ongole, Prakasam (Dist), AndhraPradesh, India

## Department of Computer Science & Engineering

Date: 09-11-2018.

## CLOSING REPORT

To

The principal,

Rise Krishna Sai Gandhi Group of Instutions

As per the approved schedule Rise Krishna Sai Gandhi group of Institutions conducted a **Certificate Program on"ADVANCED GRAPH THEORY"** at CSE Seminar Hall From **05-11-2018** to **09-11-2018** from 9.00am to 5.00pm per day.The students of II CSE total107 are participated in this programme. This Certificate Program headattended Mr. M. Siva prasanth, Working as Freelancer Trainer at State Head for Corporate communication

Main issues addressed:

- Matching
- Connectivity and edge
- Independence and Covering
- Labelings
- Perfect Graphs

We are expecting your support in future also, for that we will be thankful to you.

Thanking you sir,

Yours faithfully,

Faculty Coordniator

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