KAKARAPARTI BHAVANARAYANA COLLEGE

(AUTONOMOUS)

Kothapeta, Vijayawada – 520 001

DIPLOMA IN DRONE PILOT

COURSE STRUCTURE DIPLOMA IN DRONE PILOT

Diploma in DRONE PILOT				
Year – 1	**COURSE CODE**	**Credits**	**Marks**	
Semester- 1			**Internal**	**Extern**
General Education Stream				
Soft Skills-I	R20DSS-I	3	-	50
Analytical skills-I	R20DAS-I	3	-	50
Electronic components & practice	R20ESP-I	3	-	50
Skill Component				
Paper I - UAV Basic Concepts	R20DDP101	5	25	75
Paper II - UAV Sensing Systems	R20DDP102	5	25	75
Paper III - UAV Basic Concepts (Practical)	R20DDP101P	3	-	50
Paper IV- UAV Sensing Systems (Practical)	R20DDP102P	3	-	50
MOOCS		3	-	-
SEMINAR		2		
Total		30	50	400
Semester-2				
General Education Stream				
Soft Skills-II	R20DSS-II	3	-	50
Analytical skills-II	R20DAS-II	3	-	50
Digital Electronics & Microprocessors	R20DEM-II	3	-	50
Skill Component				
Paper I – Python Programming(Theory)	R20DDP201	5	25	75
Paper II – Designing with RASPERRY Pi (Theory)	R20DDP202	5	25	75
Paper III – Python Programming(Practical)	R20DDP201P	3	-	50
Paper IV – Designing with RASPERRY Pi (Practical)	R20DDP202P	3	-	50
OJT*		3	-	-
SEMINAR		2		
Total		30	50	400

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

Programme	Semester	Title of The Course	Course Code	W.E.F
Diploma in Advances in Computer Science, Diploma in Data Analytics, Diploma in Drone Pilot, Diploma in Event management	**I**	**Soft Skills – I**	**R20DSS1**	**2020-21**

Total No of Hours for Teaching - Learning	Instructional Hours for Week	Duration of Semester End Examination in Hours	Max Marks		Credits
	Theory		CIA	SEE	
30	30	2 Hrs.	-	50	3

Learning Outcomes:

By the end of the course the learner will be able to:

- Understand the significance and essence of a wide range of soft skills.
- Learn how to apply soft skills in a wide range of routine social and professional settings.
- Learn how to employ soft skills to improve interpersonal relationships
- Learn how to employ soft skills to enhance employability and ensure workplace and career success.

I. UNIT

1. Soft Skills: An Introduction – Definition and Significance of Soft Skills; Process, Importance and Measurement of Soft Skill Development.

2. Self-Discovery: Discovering the Self; Setting Goals; Beliefs, Values, Attitude, Virtue.

II. UNIT

1. Interpersonal Communication: Interpersonal relations; communication models, process and barriers; team communication; developing interpersonal relationships through effective communication; listening skills; essential formal writing skills; corporate communication styles – assertion, persuasion, negotiation.

2. Public Speaking: Skills, Methods, Strategies and Essential tips for effective public speaking.

III. UNIT

1. Interview Skills: Interviewer and Interviewee – in-depth perspectives. Before, During and After the Interview. Tips for Success.

2. Presentation Skills: Types, Content, Audience Analysis, Essential Tips – Before, During and After, Overcoming Nervousness.

3. **Etiquette and Manners** – Social and Business

IV. UNIT

1. Decision-Making and Problem-Solving Skills: Meaning, Types and Models, Group and Ethical Decision-Making, Problems and Dilemmas in application of these skills

V. UNIT

1. Emotional Intelligence: Meaning, History, Features, Components, Intrapersonal and Management Excellence; Strategies to enhance Emotional Intelligence.

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

Programme	Semester	Title of The Course	Course Code	W.E.F
Diploma in Advances in Computer Science, Diploma in Data Analytics, Diploma in Drone Pilot, Diploma in Event management	**I**	**Soft Skills – I**	**R20DSS1**	**2020-21**

MODEL QUESTION PAPER

Time: 2Hrs **Marks: 50**

I. Answer any Two questions from the following in 75 words each: **2X5=10M**

1. Define Soft Skills and importance of Soft Skills?
2. Suggest some methods to develop soft skills?
3. Define Attitude and state how Beliefs differ from Values with an example.
4. How important is setting a Goal in order to succeed in one's Career?

II Answer any Two questions from the following in 75 words each: **2X5=10M**

1. Define Communication and the Process of Communication.
2. How can we develop interpersonal relationships through effective communication?
3. Suggest some strategies for effective public speaking.
4. What is public speaking and how important is public speaking in day-today Communication?

III. Answer any Two of the following in 75 words each: **2X5=10M**

1. Suggest some important tips to succeed in an interview.
2. Define the role of an Interviewer and Interviewee.
3. Mention different types of presentation skills.
4. Role of etiquette in successful Business communication.

IV. Answer any Two of the following in 75 words each: **2X5=10M**

1. How important is decision making skills and mention some types of decisions?
2. What are the problems we encounter in making effective decisions?
3. What are the strategies to follow in order to be a good decision maker?
4. How can we identify a problem and respond to that in due time?

V. Answer any Two of the following in 75 words each: **2X5=10M**

1. What is emotional intelligence? Explain.
2. What are the strategies to enhance Emotional Intelligence.
3. How emotional intelligence place a role in managing interpersonal relations and excel in one's career.
4. Define the features and components of emotional intelligence?

KAKARAPARTI BHAVANARAYANA COLLEGE (Autonomous)

Department Of Mathematics

Programme	Semester:	Title of The Course	Course Code:	W.E.F
Diploma	I	ANALYTICAL SKILLS-I	DAS1	2020 – 2021

Total No of Hours for Teaching - Learning	Instructional Hours for Week		Duration of Semester End Examination in Hours	Max Marks		Credits
30 Hours	Theory		2 Hours		SEE	2
	2				50	

COURSE OBJECTIVES:

- The aim of this course is to provide necessary information to Analytical Skills and their applications.
- To develop logical thinking and its application to computer science

COURSE OUTCOMES:

- Understand the concept of Divisibility , Averages.
- Will be able to write an argument using logical notation and determine if the argument is or is not valid.
- Will be able to know Percentages, Number, letter series, missing letters.

UNIT-1: (12 hours) - Divisibility:
Introduction to Divisibility by 2,3,4; Introduction to Divisibility by 5,6,8; Divisibility by 9,10,11

UNIT -2: (12 hours) - Averages:
Introduction to average of prime numbers; Introduction to natural numbers; Introduction of results; Introduction to averages of weights.

UNIT -3 : (12 hours) – Percentages:
Introduction to the concept of percentage; introduction to express x% as a fraction; introduction to express $\frac{a}{b}$ as a percent; introduction to results on population; introduction to results on depreciation.

UNIT -4: (12 hours) - Number, letter series, missing letters:
Introduction to numbers; introduction to face value and place value; introduction to various types of numbers; introduction to number series; introduction to missing letters.

UNIT-5 : (12 hours) – Blood relations :
Introduction to deciphering jumbled up descriptions; introduction to relations puzzle; introduction to coded relations.

PRESCRIBED BOOK: A Text book of Quantitative Aptitude by R S Agarwal

KAKARAPARTI BHAVANARAYANA COLLEGE (Autonomous)

Department of Mathematics

Programme	Semester:	Title of The Course	Course Code:	W.E.F
Diploma	I	ANALYTICAL SKILLS-I	DAS1	2020 – 2021

Total No of Hours for Teaching - Learning	Instructional Hours for Week		Duration of Semester End Examination in Hours	Max Marks		Credits
30 Hours	Theory		2 Hours		SEE	2
	2				50	

MODEL PAPER

Section A

I. Answer any 10 of the following questions: 10x2=20m

1. Simplify $\frac{(893+786)^2-(893-786)^2}{(893\times786)}$
2. Find the sum$(2+2^2+2^3+2^4+\text{---------}+2^{10})$
3. Show that 4832718 is divisible by 11.
4. Find the average of all prime numbers between 30 and 50.
5. Find the average of first five multiples of 3.
6. The average of four consecutive even numbers if 27. Find the largest of these numbers.
7. Evaluate 28% of 450+45% of 280
8. What percent of 7 is 94.
9. If 15% of x=20% of y. What is x:y
10. 9587-? = 7429-4358
11. What will come in the place of question mark in the following series

BF CH ? HO LT

12. Find the missing number in the series 2 5 10 17 ? 37
13. B is the brother of D, D is sister of F, M is the brother of F. How F id related to B?
14. Introducing a man a woman, said "he is the only son of my mother's mother". How woman related to the man.
15. A man said to a lady "your mother's husband's sister is my aunt". How is the lady related to the man.

Section B

II. Answer any five of the following questions: 5 x6 = 30m

16. Explain divisibility rules.
17. Find the sum of all even natural numbers less than 75.
18. The average monthly income of P and Q is Rs. 5050 the average monthly income of Q and R is Rs. 6250 and average monthly income of P and R is Rs. 5200 then find the monthly income of P.
19. The average weight of 21 boys was recorded as 64kg. If the weight of the teacher was average increased by one kg. What was the teacher's weight.
20. The salaries of A, B, C are in the ratio 2:3:5. If the increments of 15%, 10% and 20% are allowed respectively in their salaries, then what will be the new ratio of their salaries.
21. Two friends P and Q started a business investing in the ratio of 5:6. R joined them after 6 months investing an amount equal to that of Q's. At the end of the year 20% profit was earned which was equal to Rs.98,000. What was the amount invested by R.
22. In a bag there are coins of 25p, 10p and 5p in the ratio of 1:2:3, if there are Rs.30 in all, how many 5p coins are there.
23. The sum of two numbers is 10 and their sum is 14.
    a. Fins the numbers and
    b. Find the product of two numbers.
24. What is mean by Blood Relation?
25. How many numbers between 11 and 90 are divisible by "7".

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Kothapeta- Vijayawada

(An Autonomous College in the Jurisdiction of Krishna University)

programme	**Semester:**	**Title of the course**	**Course Code:**	W.E.F
DIPLOMA IN DRONE PILOT	**I**	**Electronic Components & Practice**	R20ESP-I	**2020-21**

Total No of Hours for Teaching - Learning	**Instructional Hours for Week**		**Duration of Semester End Examination in Hours**	**Max Marks**		**Credits**
30 Hours	**Theory**	**Practical**	2Hours	**CIA**	**SEE**	3
	2				**50**	

Objective

This course is intended to help the students to get clear idea of fundamentals of electronic components and develop practical skills in using various types of electronic components employed in electronic industries. It will also make the students familiar with the suitability of various electronics components for different applications. More over this course is intended to develop skills of testing components that will be really needed for the project and setting up of many experiments in other basic and applied technology courses. This cour se will also enable the student to develop the ability to understand datasheets

Outcomes:

- Differentiate various types of resistors, capacitors and inductors & their usage.
- Test various components
- Compare various types of cables, connectors and fuses.
- Describe applications of various types of cables, connectors and fuses. Test various sables, connectors and fuse

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ELECTRONIC COMPONENTS & PRACTICE

Syllabus

UNIT-1-ELECTRONIC COMPONENTS

1.1 RESISTORS

Concept of resistors, classification of resistors, materials used for resistors, resistors general specification: -maximum power rating, tolerance, temperature co-efficient, Construction, specification and application of carbon film resistors, standard wire wound resistors, colour coding, construction, working, application and characteristic curves of LDR

1.2 CAPACITORS

Classification of capacitors, materials used for capacitors, capacitors specification: - capacitor working voltage, fixed capacitor- construction, specification and application of disc, ceramic capacitor, aluminium electrolytic capacitor, variable capacitor- application of air gang, PVC gang capacitor, Trimmer capacitor – mica, Coding of capacitors-using numerals, colour band system, directly printed values on capacitors, capacitive reactance

1.3 INDUCTORS

Faradays laws of electromagnetic induction, self & mutual induced emf inductor specifications- definitions and expressions of: - self-inductance, mutual inductance, coefficient of coupling, Q factor, inductive reactance. construction and application of air core, iron core, ferrite core inductor, frequency range inductors- A.F., R.F., I.F., toroidal inductor

UNIT2: PN JUNCTION DIODE, RECTIFIERS AND TRANSISTORS

2.1 PN JUNCTION DIODES

Review of P-type and N-type semiconductor, characteristics of PN junction diode, forward voltage drop, reversed saturation current, Power dissipation, breakdown voltage

2.2 RECTIFIER

Need of rectifier, definition, types of rectifier – half wave rectifier voltage (no derivation) ,ripple, ripple factor, ripple frequency of diode used, transformer utilization factor, efficiency of rectifier of three types of rectifier

2.3 Introduction to Transistors

Transistor construction, Types of transistor (NPN & PNP) Transistor operation and amplifying action. Transistor Configuration, (CB, CE, CC configuration.) Relation between current gain, alpha and beta.

UNIT3: INTRODUCTION TO IC AND SMD

3.1 IC'S

Classification of IC's, monolithic IC, advantages, disadvantages of IC's thick & thin film IC, hybrid IC, linear IC, digital IC, IC packages-SIP, TO 5, Flat, DIP, pin Identification, temperature ranges, device identification

3.2 SMD

Concept of SMT & SMD, advantages & disadvantages of SMD.SMD resistor, capacitor, IC, transistor, land pattern of SMD resistor, capacitor, transistor & IC's SMD packages (SOT, PLCC)

UNIT 4: 2. CABLES, CONNECTORS AND FUSES (MORE WEIGHT AGE GIVEN TO PRACTICAL)

4.1 CABLES

General specifications of cables- characteristic impedance, current carrying capacity, flexibility. Types of cables -construction and applications of coaxial cable, 600 E telephone cable-PASP, Alpeth sheathed cable, FRC cable, twin core cable twisted & shielded type, optical fibre cable

4.2 CONNECTORS

General specifications of connectors- contact resistance, breakdown voltage, insulation resistance, Constructional diagram, applications of BNC, D series, Audio, Video, printer, edge, FRC, RJ 45 connectors. constructional diagram and applications of phone plug & jacks

4.3 FUSES

Glass, ceramic fuse, resettable fuse, shunt fuse- MOV, HRC fuse

UNIT 5: SWITCHES AND RELAYS (MORE WEIGHT AGE GIVEN TO PRACTICAL)

5.1 SWITCHES

Switch specifications – voltage rating, contact current rating, contact resistance, characteristics of switch & relay – operating time, release time, bounce time, constructional diagram, application of toggle, rotary, push to on & push to off, rocker

5.2 RELAYS

Construction, working and application of general-purpose relay, NO, NC contact, reed relays, solid state relays, difference between switch & relays

REFERENCE BOOKS

Electronic Components and Materials- Madhuri Joshi
Electrical & Electronics Engineering Materials Component- S.K. Bhattacharya
Electronic Components Handbook- Thomas H. Jone

MODEL PAPER

ELECTRONIC COMPONENTS & PRACTICE
SUB: ELECTRONICS (SEMESTER-I) **MARKS: 50**
COURSE CODE: R20ESP-I **TIME: 2H**

SECTION-A

ANSWER THE FOLLOWING QUESTIONS: **(5X10=50M)**

1. A) What is the resister? Explain classification of resisters

(OR)

B) What is the capacitor? Explain classification of capacitor.

2. A) What is the PN junction diode and explain V-I characteristics.

(OR)

B) What is the rectifier? Draw and explain full wave rectifier

3. A) Explain classification of IC's

(OR)

B) Write the Concept of SMT & SMD. What are the advantage and disadvantages?

4. A) Explain different type CABLES

(OR)

B) Explain different type CONNECTORS

5. A) What is the SWITCH and explain the switch specifications.

(Or)

B) What is the RELAY and Explain the Construction, working and application of the relays.

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Kothapeta- Vijayawada

(An Autonomous College in the Jurisdiction of Krishna University)

programme	**Semester:**	**Title of the course**	**Course Code:**	W.E.F
DIPLOMA IN DRONE PILOT	**I**	**UAV BASIC CONCEPTS**	R20DDP101	**2020-21**

Total No of Hours for Teaching - Learning	**Instructional Hours for Week**		**Duration of Semester End Examination in Hours**	**Max Marks**		**Credits**
30 Hours	**Theory**	**Practical**	3Hours	**CIA**	**SEE**	5
	3	3		**25**	**75**	

OBJECTIVE

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

1. Recognize and describe the role of unmanned aerial vehicles (UAVs) in past, present, and future society
2. Comprehend and explain various components of UAVs
3. Comprehend and explain basics of flight and flight control systems
4. Understand and describe basic regulations applicable to UAV flight
5. Provide opportunity for students to gain hands-on experience in working with UAVs

OUTCOMES:

A first course in unmanned aerial vehicles (UAVs), aka "drones", and the technologies involved in their operation. Coverage includes UAV components, command and control (C2) communication systems, basics of flight, regulations, safety and societal considerations. Laboratory activities provide opportunity for students to gain hands-on experience in working with UAVs.

UAV BASIC CONCEPTS

UNIT-I: Introduction to Drones and their Applications

1.1 Definition of Drones
1.2 History of Drones
1.3 India and Drones
1.4 Tinkering and Drones
1.5 Classification of Drones
1.6 Application of UAVs

UNIT-II: DGCA Regulations

2.1 Classification
2.2 Basic Air Regulations
2.3 Salient Points
2.4 Do's and Don'ts
2.5 No Drone Zones
2.6 Operations/Procedural Requirements

UNIT-III: Basic Principles of Flight

3.1 Anatomy of Aircraft
3.2 Fundamentals of Flight
3.3 Forces of Flight
3.4 Basic Aerodynamics
3.5 Flight Phases
3.6 Principal axis and Rotation of Aerial System
3.7 Manoeuvres
3.8 Circuit Pattern & Turns

UNIT-IV: Fixed Wing Operations and Aerodynamics

4.1 Types of Fixed Wing UAVs
4.2 Parts of Fixed Wing
4.3 Operation and Manoeuvres
4.4 Applications and Operations
4.5 Advantages & Disadvantages over Multirotor

UNIT-V: Multirotor introduction and Operations

5.1 Basic Terminology
5.2 Types of Drones, Material used
5.3 Motors and Propellers
5.4 ESC, Flight Controllers
5.5 Applications and Operations
5.6 Advantages and disadvantages over Fixed wing

UNIT-VI: Weather and Meteorology

6.1 The Standard Atmosphere
6.2 Measuring Air Pressure
6.3 Heat and Temperature
6.4 Wind
6.5 Moisture & Cloud Formation
6.6 METAR

Practical:

1. Simulator Flying
1.1 Basic operating features of flight simulator
1.2 How to select different aircrafts
1.3 How to select different aerodromes
1.4 Pre-flight checks and start-up
1.5 Preparation cum coordination for flight
1.6 Take-off and Flight stage
1.7 Approach and Landing
1.8 After flight checks
2. Aero modelling
2.1 Introduction
2.2 Types of Aero models
2.3 Tools and Materials
2.4 Construction of Gliders
2.5 Rules of Thumb for Design

Case Study:

Future & Commercial applications of Drones

UAV BASIC CONCEPTS
MODEL PAPER
SECTION-A

ANSWER THE FOLLOWING QUESTIONS

1 A) What is the definition of drone and explain history of drones. 5x10=50M

(Or)

B) Explain classification of drones and applications of drones.

2 A) Explain classification of DGCA regulations.

(Or)

B) DO'S and Don'ts of the UAV

3 A) Explain the fundamentals of flight controllers

(Or)

B) Explain Principal axis and Rotation of Aerial System

4A) Explain Types of Fixed Wing UAVs

(Or)

B) Explain Parts of Fixed Wing

5A) what type of Motors and Propellers used in drones

(Or)

B) Explain METAR

SECTION-B

ANSWER ANY FIVE QUESTIONS (5 X 5 =25M)

6. What are the advantages and disadvantages of drones
7. Importance of drone in present situations'
8. What is the NO drone zones
9. What are applications of Fixed Wing UAVs
10. Advantages & Disadvantages of Multirotor UAVs
11. Explain ESC
12. What is the heat and temperature
13. How to Measure Air Pressure.

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Programme	**Semester:**	**Title of the course**	**Course Code:**	W.E.F
DIPLOMA IN DRONE PILOT	**I**	**UAV SENSING SYSTEMS**	R20DDP102	**2020-21**

Total No of Hours for Teaching - Learning	**Instructional Hours for Week**		**Duration of Semester End Examination in Hours**	**Max Marks**		**Credits**
30 Hours	**Theory**	**Practical**	3Hours	**CIA**	**SEE**	5
	3	3		**25**	**75**	

OBJECTIVE:

- Acquire the knowledge on types of sensors/transducers, working principles, selection procedure, applications of sensing systems in Un-manned aerial vehicle.

OUTCOMES

- Select a sensor/sensing system for a requirement
- Able to test, install and collect the data from a group of sensors.
- Able to derive sensor-based solution for different applications.

UAV SENSING SYSTEMS
SYLLABUS

UNIT-I: Payload, Installation & Utilization

1.1 Types of Payloads
1.2 Parts of Payloads
1.3 Installation
1.4 Features of Payloads
1.5 Utilization of Payloads

UNIT-II: Drone Sensors

2.1 Sensor & its Classification
2.2 Accelerometer
2.3 Barometer
2.4 Gyro sensor
2.5 Magnetometer
2.6 Distance Sensor
2.7 Thermal Sensor
2.8 Time of Flight (ToF) Sensor
2.9 GPS

UNIT-III: Drone Equipment Maintenance

3.1 Maintenance of Drone
3.2 Different types of checklists
3.3 Scheduled servicing
3.4 Record Keeping

UNIT-IV: Emergency Identification

4.1 Inflight Emergencies
4.2 Loss of link
4.3 Flyaway
4.4 Loss of power
4.5 Control Surface Failures

UNIT-V: ATC Procedures & Radio Telephony

5.1 Understanding ATC Operations
5.2 Airspace Structure & Airspace Restrictions
5.3 ATC Communication
5.4 Collision Avoidance System
5.5 RT Techniques
5.6 Standard Radio Terminology & Phraseology

UNIT-VI: Image & Video Interpretation

6.1 Principles of observation
6.2 Interpretation of Image/Video
6.3 Analysis

Practical:

1. Drone Building

1.1 Assembling

1.2 De-assembling

1.3 Integration of sub-section/modules

1.4 Flight Controller Board Setup

2. Radio Communication

2.1 Clearance and Taxi

2.2 Take-off & Departure

2.3 Read-back

2.4 Approach & Landing

2.5 Emergency Communications

3. Practical Flying with Instructor

4. Solo Flying

Case Study:

Drones Business & Entrepr

UAV SENSING SYSTEMS

MODEL PAPER

SECTION-A

ANSWER THE FOLLOWING QUESTIONS

1 A) Explain Types of Payloads 5*10=50M

Or

B) Explain installation and features of payloads.

2 A) What is the sensor and explain classifications of sensors

Or

B. Explain different types barometers and Magnetometer

3 A) Explain about different types of check list in UAVs

Or

B) Explain Scheduled servicing of UAV

4A) What are the different type of failures in UAVs and explain.

Or

B) What is ATC, and explain about operations, communications of ATC

5A)What is the Radio Telephony and explain about Standard Radio Terminology & Phraseology

Or

B) What are the Principles of observation and explain about Interpretation of Image/Video

SECTION-B

ANSWER ANY FIVE QUESTIONS (5 X 5 =25M)

6. What is payload and explain parts of payloads
7. Explain Utilization of Payloads
8. Define acceleration and explain about Accelerometer sensor
9. Write a short note thermal sensor
10. Explain about Maintenance of Drones
11. Explain Inflight Emergencies od UAVs
12. What is Airspace Structure & Airspace Restrictions.
13. What is the Analysis and explain different types of analysis

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

DEPARTMENT OF ENGLISH

Programme	Semester	Title of The Course	Course Code	W.E.F
Diploma in Advances in Computer Science, Diploma in Data Analytics, Diploma in Drone Pilot, Diploma in Event management	**II**	**Soft Skills – II**	**R20DSS2**	**2020-21**

Total No of Hours for Teaching - Learning	Instructional Hours for Week	Duration of Semester End Examination in Hours	Max Marks		Credits
	Theory		CIA	SEE	
30	30	2 Hrs.	-	50	3

Learning Outcomes:

By the end of the course the learner will be able to:

- Understand the significance and essence of a wide range of soft skills.
- Learn how to apply soft skills in a wide range of routine social and professional settings.
- Learn how to employ soft skills to improve interpersonal relationships
- Learn how to employ soft skills to enhance employability and ensure workplace and career success.

I. UNIT

1.Positivity and Motivation: Developing Positive Thinking and Attitude; Driving out Negativity; Meaning and Theories of Motivation; Enhancing Motivation Levels.

II. UNIT

1. Group Discussion: Importance, Planning, Elements, Skills assessed; Effectively disagreeing, Initiating, Summarizing and Attaining the Objective.

2. Non-Verbal Communication: Importance and Elements; Body Language

III. UNIT

1.Time Management – Concept, Essentials, Tips.

2. **Personality Development** – Meaning, Nature, Features, Stages, Models; Learning Skills; Adaptability Skills.

IV. UNIT

1.Conflict Management: Conflict - Definition, Nature, Types and Causes; Methods of Conflict Resolution.

2. Stress Management: Stress - Definition, Nature, Types, Symptoms and Causes; Stress Analysis Models and Impact of Stress; Measurement and Management of Stress

V. UNIT

1.Leadership and Assertiveness Skills: A Good Leader; Leaders and Managers; Leadership Theories; Types of Leaders; Leadership Behaviour; Assertiveness Skills.

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

Programme	Semester	Title of The Course	Course Code	W.E.F
Diploma in Advances in Computer Science, Diploma in Data Analytics, Diploma in Drone Pilot, Diploma in Event management	II	Soft Skills – II	R20DSS2	2020-21

MODEL QUESTION PAPER

Time: 2Hrs **Marks: 50**

I. Answer any Two questions from the following in 75 words each: **2X5=10M**

5. Define positive attitude and principles to develop positive attitude.
6. Discuss briefly some theories of Motivation.
7. Can you brief some meaningful steps that help in enhancing Motivation?
8. What are the reasons for Negative thinking? Mention some consequences of Negative Thinking?

II. Answer any Two questions from the following in 75 words each: **2X5=10M**

5. How does group discussion help in developing communication skills?
6. How is group discussion different from a debate?
7. What is Non-Verbal Communication? Importance of Nonverbal skills in day-today life.
8. Importance of Body language in Non -Verbal communication.

III. Answer any Two of the following in 75 words each: **2X5=10M**

1. How important is Time Management foe a Successful Career?
2. What are the essential factors that plays a crucial role in observing Time?
3. Define Learning skills and Adaptability skills.
4. Mention some features and models that helps in developing one's personality.

IV. Answer any Two of the following in 75 words each: **2X5=10M**

1. What are the methods that help us in resolving Conflict?
2. What are the Causes of Conflict? Mention some types of conflict.
3. How can we identify stress? Mention some types of Stress.
4. Suggest some strategies to Manage and Measure Stress.

V. Answer any Two of the following in 75 words each: **2X5=10M**

a. Is Manager a leader? What makes a Leader different from a Manager?
b. What makes a good leader? Can you explain some Theories of Leadership?
c. How does assertive skills play a role in making a leader?
d. How does one's behaviour affect a person in becoming an effective leader?

KAKARAPARTI BHAVANARAYANA COLLEGE (Autonomous)

Department Of Mathematics

Programme	Semester:	Title of The Course	Course Code:	W.E.F
Diploma	**II**	**ANALYTICAL SKILLS-II**	**DAS2**	**2020 – 2021**

Total No of Hours for Teaching - Learning	Instructional Hours for Week		Duration of Semester End Examination in Hours	Max Marks		Credits
30 Hours	Theory		2 Hours		SEE	2
	2				50	

COURSE OBJECTIVES

- The aim of this course is to provide necessary information to Analytical Skills and their applications.
- To develop logical thinking and its application to computer science

COURSE OUTCOMES

- Understand the concept of Data Interpretation.
- Will be able to write an argument using logical notation and determine if the argument is or is not valid.
- Will be able to know Directions – Permutations and Combinations , Coding – Decoding and Puzzles,

UNIT -1: (12 hours) – Data Interpretation:

Introduction to tabulation; introduction to problems on tabulation; introduction to bar graphs; introduction to problems on bar graphs; introduction to pie charts.

UNIT -2: (12 hours) – Profit and Loss:

Introduction to cost price; introduction to selling price; introduction to profit; introduction gain %; introduction to loss; introduction to loss percent.

UNIT -3: (12 hours) – Distance-Speed-Time:

Introduction to speed; introduction to distance; introduction to time; introduction to change x km/hr; introduction to speed in km/hr.

UNIT -4: (12 hours) – Directions – Permutations and Combinations:

Introduction to directions; introduction to factorial notation; introduction to permutations; introduction to number of permutations; introduction to combinations; introduction to number of combinations.

UNIT -5: (12 hours) – Coding – Decoding and Puzzles:

Introduction to letter coding; introduction to direct letter coding; introduction to number coding; introduction to symbol coding; introduction to matrix coding.

PRESCRIBED BOOK : Text book of Quantitative Aptitude by R S Agarwal

BLUE PRINT

UNIT	SAQ	LAQ
I	3	2
II	3	2
III	3	2
IV	3	2
V	3	2

KAKARAPARTI BHAVANARAYANA COLLEGE (Autonomous)

Department of Mathematics

Programme	Semester:	Title of The Course	Course Code:	W.E.F
Diploma	**II**	**ANALYTICAL SKILLS-II**	**DAS2**	**2020 – 2021**

Total No of Hours for Teaching - Learning	Instructional Hours for Week		Duration of Semester End Examination in Hours	Max Marks		Credits
30 Hours	Theory		2 Hours		SEE	2
	2				50	

MODEL PAPER

Section A

I. Answer any ten of the of following questions: 10 x2 =20m

1. Find cp when sp=Rs. 40.60 and Gain=16%.
2. If a ratio is purchased for Rs.490 and sold for Rs.165.50 find the loss percent.
3. A chair is bought for Rs.460/- and sold at a gain of 15% find the selling price.
4. By selling an article for Rs.100, a man gains Rs.15 find the gain percent.
5. A train travels 450km's in 7hrs and another train 740km's in 10hrs. Find the average speed of the train.
6. A 250mts long train crosses a pole in 15sec. What is the speed of the train in km/hr.
7. The speed of train is 90km/hr. What is the distance covered by it in 10mins.
8. A car moves at the speed of 80kn/hr, What is the speed of the car is mt/sec.
9. Evaluate $\frac{30!}{28!}$
10. How many words can be formed by using all letters of the word "BIHAR".
11. Find the value of

a. 10_{c_3}

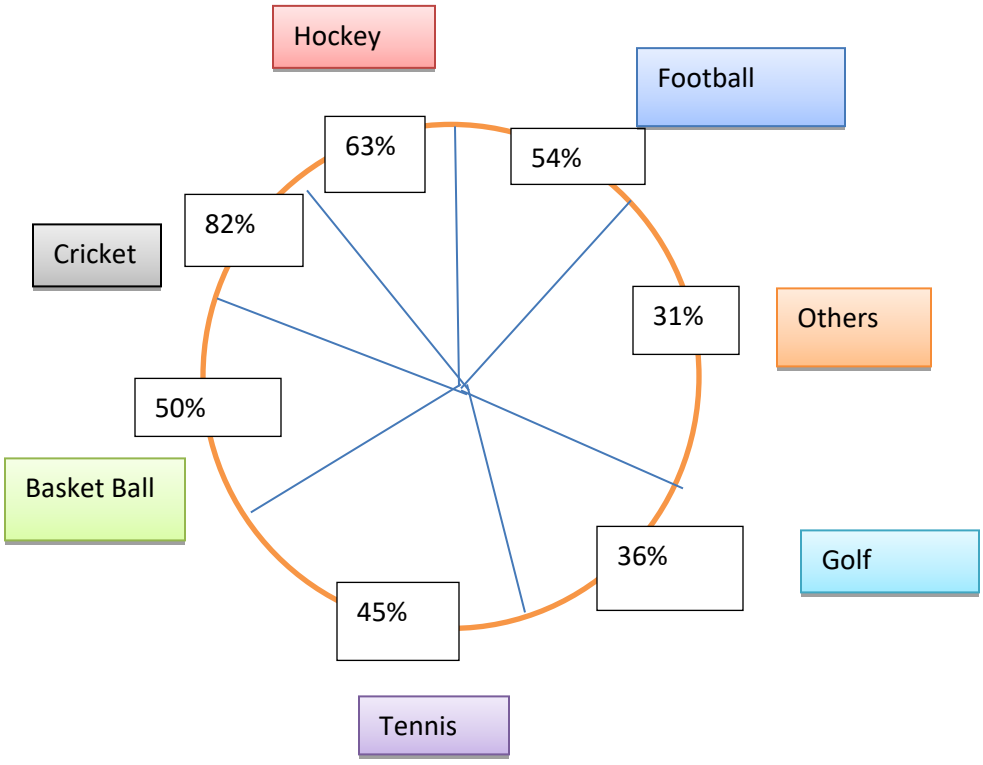
b. $100_{c_{98}}$

12. In how many ways can a cricket team eleven be choosen out of batch of 15 players.
13. In how many ways can the letters of the word"APPLE"
14. If HEALTH is written as GSKZDG then how will NORTH be written in that code?
15. In a certain code, TEACHER is written as VGCEJGT. How is CHILDREN written in that code.

Section B

II. Answer any five of the following questions: 5 x 6 =30

16. A book was sold for Rs.27.50 with a profit of 10%. If it were sold for Rs.25.75 then what would have been the percentage of profit (or) loss.
17. A man gain 20% by selling an article for a certain price. If he sells it at the double the price. What is the percentage of profit.
18. An article is sold at a certain price. By selling it at 2/3 of that prices one loses 10%. Find the gain percent at original price.
19. Explain profit and loss.
20. How many minutes does Ramana takes to cover a distance of 400mts if he runs at a speed of 20km/hr.
21. How many words can be formed from the letters of the word "DIRECTPR" so that the vowels come together.
22. In a group of 6 boys and 4 girls, four children are to be selected. In how many different ways can they be selected such that bat least one boy should be there.
23. Explain permutation and combination.
24. In a certain code EAT is written as 318 and CHAIR is written as 24156. What will TEACHER be written as?
25. The circle graph drawn here shows the spendings of a country on various sports during a particular year. Study the carefully and answer the questions given below.



i. How much percent of total spending is spent on Tennis?
ii. How much percent more is spent on Hockey than on Golf?
iii. How much percent is less is spent on Football than that on cricket?
iv. If the total amount spent on sports during the year was Rs.2 crores, the amount spent on cricket and Hockey together was?
v. If the total amount spent on sports during the year be Rs.1,80,00,000 the amount of spent on Basketball exceeds that on Tennis by?

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

(Sponsored by S.K.P.V.V. Hindu High Schools' Committee)

Kothapeta- Vijayawada

(An Autonomous College in the Jurisdiction of Krishna University)

Programme	**Semester:**	**Title of the course**	**Course Code:**	W.E.F
DIPLOMA IN DRONE PILOT	**II**	**DIGITAL ELETRONICS & MICROPROCESSORS**	**R20DEM-II**	**2020-21**

Total No of Hours for Teaching - Learning	**Instructional Hours for Week**		**Duration of Semester End Examination in Hours**	**Max Marks**		**Credits**
30 Hours	**Theory**	**Practical**	2Hours	**CIA**	**SEE**	3
	2				**50**	

OBJECTIVE

- More broadly, they will be ready to handle substantial and challenging design problems. In particular, students will be able to:
- Explain the elements of digital system abstractions such as digital representations of information, digital logic, Boolean algebra, state elements and finite state machine (FSMs).
- Design simple digital systems based on these digital abstractions, using the "digital paradigm" including discrete sampled information.
- Use the "tools of the trade": basic instruments, devices and design tools.
- Work in a design team that can propose, design, successfully implement and report on a digital systems project.
- Communicate the purpose and results of a design project in written and oral presentations.

COURSE OUTCOMES

- Describe how analog signals are used to represent digital values in different logic families, including characterization of the noise margins. Create the appropriate truth table from a description of a combinational logic function.
- Create a gate-level implementation of a combinational logic function described by a truth table using and/or/inverter gates, MUX'S and DE-MUX'S analyse its timing behaviour.
- Create a state transition diagram from a description of a sequential logic function and then convert the diagram into an implementation of a finite-state machine with the appropriate combinational and sequential components.
- Understand and apply the fundamentals of assembly level programming Of microprocessors pin configurations and architectures.
- Analyse and design memory and memory systems.

DIGITAL ELECTRONICS & MICROPROCESSORS

UNIT –I

NUMBER SYSTEM AND CODES: Binary, Octal, Decimal, Hexa-Decimal, BCD Number systems**, Complements**: (1's, 2's, 9's and 10's).Addition, Subtraction, Gray, Excess-3 Code conversion from one to another.- **Logic Gates:** Boolean theorems-Basic logic gates, AND, OR, NOT, NAND and NOR as universal gates, exclusive- OR gate, realisation of other logic functions using NAND/NOR – de Morgan Laws -verification of de Morgan Laws using logic gates

UNIT-2:

COMBINATIONAL DIGITAL CIRCUITS: **Adders:** Half & full adder, Parallel binary adder. **Sub-tractor:** Half and full sub-tractors, Multiplexers: (2:1, 4:1) and **De-multiplexers:** (1:2, 1:4). **Encoder:** (8-line-to-3-line) and **Decoder**: (3-line-to-8-line).

UNIT-3:

SEQUENTIAL DIGITAL CIRCUITS: Flip – flop – S-R flip-flop –control inputs- race condition –clocked flip flop – J-K flip – flop- master slave J-K flip – flop- D flip – flop – T- flip – flop.

UNIT-4:

ARCHITECTURE OF 8085 MICROPROCESSOR: Functional Block diagram of Intel 8085, Register structure, Multiplexing & De-multiplexing of address / data bus, Control Signal Generation and Status signals, 8085 Pin-out diagram & functions,

UNIT-5:

MICROCONTROLLER 8051: Difference between microprocessor and microcontroller, Introduction to microcontroller- Advantages & its Applications of microcontroller, Architecture of 8051 microcontroller, Register set of 8051 microcontroller, Pin description and port organization(I/o ports) of 8051 microcontroller

TEXT BOOKS:

1. M.Morris Mano, " Digital Design " 3rd Edition, PHI, New Delhi.
2. Ronald J. Tocci. "Digital Systems-Principles and Applications" 6/e. PHI. New Delhi.
1999.(UNITS I to IV) 3.Microprocessors & Microcontrollers by N .Senthilkumar, M.
Saravanan& S. Jeevananthan, 1 st edition, Oxford press(Helpful for interfacing applications)
4. Microprocessors & Microcontrollers by B.P.Singh, Galgotia
publications Pvt.Ltd. 5.The 8051 micro controller and embedded
systems using Assembly and C, M.A.Mazidi,

MODEL QUESTION PAPER

TIME : 2 HRS Max marks : 50

SECTION-A (ESSAY TYPE)

Answer All questions with internal choice from all units Marks: 10X5 = 50

1. (a) Define 1's compliment and 2's compliment. How binary addition and subtraction can be done in 1's and 2's compliments method.

(or)

(b) Define logic gate. Explain the logic gates with their truth tables.

2. (a) State and Prove de Morgan's laws with necessary truth tables and circuits.

(or)

(b) Explain the truth tables of half adder and full adder with necessary circuit diagram.

3. (a) Discuss the operation of JK flip flop with necessary circuit diagram and truth table.

(or)

(b) What is flip – flop? Write about SR flip flop.

4. (a) Draw the block diagram of 8085 microprocessor and explain the function of each block in detail.

(or)

(b) Explain the instruction classification in 8085 microprocessors.

5. (a) Discuss the block diagram of 8051 micro controller and explain the function of each block.

(or)

(b)Discuss the pin configuration of 8051 microcontroller

KAKARAPARTI BHAVANARAYANA COLLEGE (Autonomous)

Department Of Computer Science & Applications

Class:	Semester	Title of The Paper:	Paper Code:	W.E.F
DIPLOMA IN ADVANCES IN COMPUTER SCIENCES/ DRONE PILOT/ DATA ANALYTICS	II	**PYTHON PROGRAMMING**	**DIP-CSC-201/R20-DRONE-CSC201/R20-DA-CSC201**	2020-2021

Total No of Hours for Teaching - Learning	Instructional Hours for Week		Duration of Semester End Examination in Hours	Max Marks		Credits
60 Hours	Theory	Practical	3 Hours	CIA	SEE	
	5	3		25	75	

Course Objectives:

The objective of the course is to introduce the concepts of Python Programming.

Course Outcomes:

- To understand the Basics of python language and Python IDLE.
- To gain problem solving capability.
- To Install and run python Interpreter.
- To gain knowledge about different data types and operators.
- To use and explore control structures and loop constructs in python.
- To understand and create built in and user defined data types.
- To identify the various form of input and output statements and its purposes
- To import and create arrays using array module.
- To insert predefined functions and operations on array.
- To understand the basics of numpy module and importing the functions from numpy module.
- To gain knowledge about multidimensional array and its link with numpy module.
- To understand and use the concept declaring functions and returning results from a function.
- To explore the use of Lambdas, List, Tuples.

SYLLABUS

UNIT-I

- Introduction to Python: Python, Features of Python, Python virtual Machine (PVM), Memory Management in Python, Comparisons between C and Python, Comparison between Java and Python
- Writing Our First Python Program: Installing Python for Windows, Writing our First Python Program, Executing a Python Program, Using Command line window, using IDLE Graphics Window, Running Directly from System Prompt.

UNIT-II

- Data types in Python: Comments in Pythons, Built-in data types, none type, numeric type, bool Data type, Sequences, Sets, Literals. User-Defined Data types, Constraints in python, Identifiers and reserved words, Naming Conventions in python, Arithmetic Operators, Assignment operators, unary Minus, Relational operators, Logical Operators, Boolean Operators, Bitwise Operators, Membership Operators, Identity Operators, mathematical functions, using IDLE window, Using command line window.

UNIT-III

- Input and Output: Output Statements, Input Statements , Command line arguments, Parsing command line arguments, Control statements, The If statement, if-else statement, is elif else statement , while loop, for loop, infinite loop, nested Loop, else Suite, break, continue statements. Pass statements.

UNIT-IV

- Arrays in Python: Array, Advantages of array, Creating array, importing the array module, types of arrays, Creating arrays using array(),Creating Arrays using line space, creating arrays using zeros() and ones() Functions, Mathematical operations in array, Viewing and copying arrays, Dimensions of arrays, Working with multidimensional arrays, matrices ,creating strings, Length of a string.

UNIT-V

- Lists and Tuples: Defining a function, calling a function, Returning Results from a function, pass by object References, Recursive Functions, anonymous functions or Lambdas, Lists, Creating Lists using range() Function, Updating the elements of a lists, Concatenation of two Lists.

Class:	Semester	Title of The Paper:	Paper Code:	W.E.F
DIPLOMA IN ADVANCES IN COMPUTER SCIENCES/ DRONE PILOT/ DATA ANALYTICS	II	**PYTHON PROGRAMMING**	**DIP-CSC-201/R20-DRONE-CSC201/R20-DA-CSC201**	2020-2021

Model Question paper

SECTION-A

Answer any five of the following question 5 x 5 = 25M

1. Explain Python virtual Machine(PVM)?
2. Explain Built in Data Types in Python?
3. Explain Input and Output statements in Python with simple Example Program?
4. Explain Advantages of Array?
5. Explain Recursive Functions in Python?
6. Write the difference between Java and Python?
7. Explain Bitwise Operators in Python?
8. Write a Python program for Swap of Two Numbers?

SECTION-B

Answer ALL of the following questions 5 x 10 = 50M

9. A) Explain features Of Python.
(OR)
B)Explain procedure to Executing a Python Program.

10. A) Explain Operators in Python.
(OR)
B) Explain Looping Statements in Python

11. A) Explain Command Line Arguments in Python
(OR)
B)Explain Looping statements in Python

12.A) Write a program to read and print array in python?
(OR)
B)Explain Different Types of Arrays?

13.A) Define a function? Explain Functions calling, returning, Results from functions
(OR)
B) Define List. Explain Procedure to create list with Example

BLUE PRINT

Class:	Semester	Title of The Paper:	Paper Code:	W.E.F
DIPLOMA IN ADVANCES IN COMPUTER SCIENCES/ DRONE PILOT/ DATA ANALYTICS	II	**PYTHON PROGRAMMING**	**DIP-CSC-201/R20-DRONE-CSC201/R20-DA-CSC201**	2020-2021

SECTION A (5*5=25 Marks)

- 5 Questions to be answered out of 8 Questions
- 1 Question must be given from each Unit

SECTION B (5*10=50 Marks)

- 2 Questions must be given from each Unit with an internal choice

Illustration of Model Question Paper

	Section A	Section B
UNIT I	1	2
UNIT II	2	2
UNIT III	2	2
UNIT IV	2	2
UNIT V	1	2
	8	10

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

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Programme	**Semester:**	**Title of the course**	**Course Code:**	W.E.F
DIPLOMA IN DRONE PILOT	**II**	**DESIGNING WITH RASPBERRY PI**	R20DDP202	**2020-21**

Total No of Hours for Teaching - Learning	**Instructional Hours for Week**		**Duration of Semester End Examination in Hours**	**Max Marks**		**Credits**
30 Hours	**Theory**	**Practical**	2Hours	**CIA**	**SEE**	5
	3	3		**25**	**75**	

OBJECTIVE:

Acquire knowledge about sensor and external peripherals interface to Raspberry Pi, transferring data into cloud using various wired and wireless communication technologies and functional computer (Linux).

OUTCOMES:

Upon the completion of this course, students will be able to demonstrate the ability to:

1. Wire Raspberry Pi and create a fully functional computer.
2. Measure physical parameter using sensors.
3. Implement various communication protocols for wired and wireless communication.
4. Interfaces different motors and create robots.

DESIGNING WITH RASPBERRY PI
SYLLABUS

UNIT-I:

Getting Started with Raspberry Pi: Basic functionality of the Raspberry Pi board and its Processor, setting and configuring the board, differentiating Raspberry Pi from other platform like Arduino, Overclocking, Component overview.

UNIT-II:

Introduction to Linux: Implications of an operating system on the behavior of the Raspberry Pi, Overview of Linux and its terminal command, apt get-update, apt get-upgrade, navigating the file system and managing processes, text-based user interface through the shell, overview of graphic user interface.

Unit-III:

Exploring Electronics with the Raspberry Pi: Communication facilities on Raspberry Pi (I2C, SPI, UART), working with RPil. GPIO library, Interfacing of Sensors and Actuators.

Unit-IV:

Communication Using Raspberry PI: Wired and Wireless communication, TCP /IP configurations, SSH, Putty Terminal usage.

Unit-V:

Robotic Motion PI: DC, Servo, Stepper, Motor Drivers, Motor Shields, ADC, DAC and PWM, Camera Interfacing, remote data logging.

Reference Books:

1. Raspberry Pi 3: An Introduction to Using with PythonScratch, Javascript and more, Gary Mitnick, CreateSpace Independent Publishing Platform, 2017.
2. Raspberry Pi for Python Programmer Cookbook, Tim Cox, Packet Publishing Limited; 2nd Revised edition, 2016.
3. Raspberry Pi User Guide, Eben Upton and Gareth Halfacreee, John Wiley & Sons, 2016.

Practical's:

1. Use your Pi as a desktop PC.
2. Set up a Pi motion detector.
3. Set up a Pi ADC/DAC.
4. Construct a digital weather station.
5. Construct Traffic Light Controller.
6. Set up file server.
7. Create a portable wireless access point
8. Communicate with Arduino
9. Raspberry Pi interfacing with stepper motor

DESIGNING WITH RASPBERRY PI

MODEL PAPER

SECTION -A

ANSWER THE FOLLOWING QUESTIONS 5X10=50M

1. A) Explain Raspberry Pi functionality .

(Or)

B) Explain pin configuration of Raspberry Pi.

2.A) what is of graphic user interface

(OR)

B) What is the Operating system explain briefly

3 A) what is the communication explain I2C.

(OR)

B) Inter facing Bluetooth using UART protocol.

4. A) Explain wired and wireless communication with examples.

(Or)

B) Explain TCP/IP model

5A) Inter facing stepper motor with Raspberry Pi

(Or)

B) Inter facing ADC with Raspberry Pi

SECTION-B

ANSWER ANY FIVE QUESTIONS (5 X 5 =25M)

6. Difference between Arduino and Raspberry Pi
7. Explain Analog pin block.
8. What is the Linux system
9. Explain GPIO in Raspberry Pi
10. What is the Sensors and Actuators
11. What is the PWM
12. What is motor. Explain types of motors.
13. Explain about the Robotic motion.