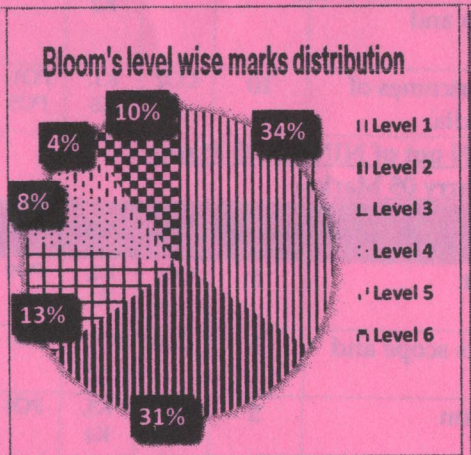
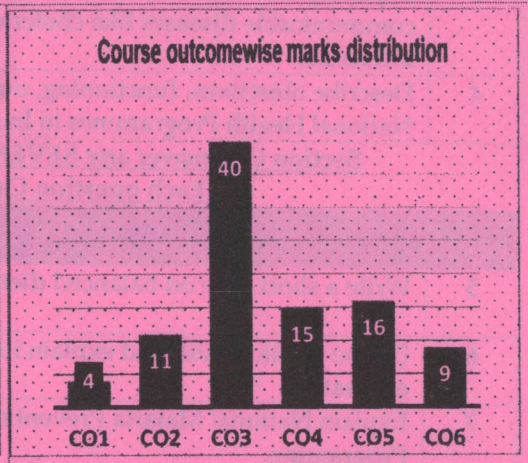
9	Explain objectives of National Tuberculosis Elimination Programme.	5	CO3	K1, K2	PO2
10	Discuss National Mental Health Programme	5	CO5	K3, K2	PO1, PO5
11	Write role of World Health Organization in India.	5	CO3	K3, K2	PO1, PO5
12	Define National Urban Health Mission (NUHM).	5	CO6	K2, K6	PO1, PO5
13	Explain functions of Primary Health Centre (PHC)	5	CO4	K1, K4	PO4

CO- Course Outcomes, **KL**- Knowledge Level, **PO** – Program Outcome

Course Outcomes	CO1	Acquire high consciousness/realization of current issues related to health.
	CO2	Get knowledge about pharmaceutical problems within the country and worldwide.
	CO3	Understand about various preventive medicines
	CO4	Have a critical way of thinking based on current healthcare development
	CO5	Evaluate alternative ways of solving problems related to health and pharmaceutical issues
	CO6	Design a better health care service system

GRAPHICAL REPRESENTATION





ARKA JAIN University
Jharkhand

NAAC GRADE A ACCREDITED UNIVERSITY

[05-05-2026]
END SEM EXAMINATION
School of Health & Allied Sciences

Program	**Bachelor of Pharmacy**		
Subject Name	**Social & Preventive Pharmacy**	**Session**	**Even, 2025-26**
Semester	**VIII**	**Year**	**April, 2026**
Time: 3 Hour Max. Marks: 75	• Start writing from 2nd page onwards; don't Write on the 1st Page Backside • **Answer all Questions of Section A (Compulsory)** • **Answer Any *Two* out of *Three* of Section B** • **Answer Any *Seven* out of *Nine* of Section C** • **Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Papers.**		
Knowledge Level (KL)	**K1 :** Remembering	**K3 :** Applying	**K5 :** Evaluating
	K2 : Understanding	**K4 :** Analysing	**K6 :** Creating

Section A (Each question Carry 01 Mark from Q1-i to xx) – 20 Marks

Q. N 1	QUESTIONS	Marks	COs	KL	PO
i	Night blindness is caused by deficiency of: a. Vitamin B b. Vitamin C c. Vitamin D d. Vitamin A	1	CO1	K2, K3	PO1
ii	Which deficiency disease is incorrectly matched? a. Vitamin A – Night blindness b. Vitamin D – Rickets c. Vitamin C – Scurvy d. Vitamin B12 – Goitre	1	CO1	K2, K4	PO1
iii	Overnutrition can lead to all EXCEPT: a. Obesity b. Diabetes c. Hypertension d. Scurvy	1	CO6	K2, K1	PO9
iv	Which of the following is NOT a component of a balanced diet? a. Vitamins b. Minerals c. Antibiotics d. Proteins	1	CO1	K5, K4	PO9
v	Which disease is both communicable and vector-borne? a. Diabetes b. Malaria c. Hypertension d. Cancer	1	CO4	K2, K1	PO4

Vi	Secondary prevention mainly focuses on: a. Rehabilitation b. Early diagnosis c. Health promotion d. Immunization	1	CO4	K1, K4	PO1
Vii	Which of the following diseases has the shortest incubation period? a. Cholera b. Malaria c. Tuberculosis d. Filariasis	1	CO4	K5, K3	PO1
Viii	Primordial prevention is best described as: a. Prevention of complications b. Prevention of disease occurrence c. Prevention of risk factors d. Early diagnosis	1	CO4	K1, K3	PO1
ix	NACP stands for: a. National AIDS Control Programme b. National Animal Control Programme c. National Air Control Programme d. None	1	CO5	K1, K3	PO1, PO5
x	TB is caused by: a. Virus b. Bacteria c. Fungus d. Parasite	1	CO4	K3, K4	PO4
xi	IDSP represents: a. Integrated Disease Surveillance Programme b. Indian Disease Service Programme c. Internal Disease Survey Programme d. None	1	CO5	K1, K4, K5	PO1, PO5
xii	Pulse Polio Programme mainly uses: a. Injectable vaccine b. Oral vaccine c. Antibiotics d. Surgery	1	CO5	K1, K2	PO1, PO5
xiii	Elderly health program is for age: a. Below 18 b. 20–40 c. Above 60 d. All	1	CO5	K1, K2, K6	PO1, PO5
xiv	Family welfare programme primarily aims at: a. Disease cure b. Population stabilization c. Industrial growth d. Education	1	CO5	K1, K5	PO1, PO5
xv	Which is NOT a function of World Health Organization? a. Providing global health guidelines b. Conducting national elections c. Disease control support d. Health data collection	1	CO5	K1, K2, K5	PO1, PO5
xvi	Which programme targets risk factor reduction rather than disease treatment? a. TB Programme b. Tobacco Control Programme c. UIP d. Pulse Polio	1	CO6	K2, K3	PO1, PO5
xvii	Which of the following is the BEST example of health promotion in schools? a. Surgery camps b. Health education sessions c. ICU care d. Chemotherapy	1	CO6	K2, K3	PO2
xviii	Which is NOT a function of PHC? a. Immunization b. Health education c. Major surgeries d. Maternal care	1	CO1	K1, K5	PO2
xix	Urban health problems are mainly due to: a. clean environment b. Overcrowding c. good sanitation d. Awareness	1	CO2	K1, K2, K5	PO1
xx	Primary Health Centre (PHC) is mainly responsible for: a. Tertiary care b. Preventive care c. Surgery d. ICU services	1	CO6	K1, K2	PO8

Section B (Answer any TWO out of THREE) – 20 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Write a note on nutritional deficiencies and their prevention.	10	CO3	K1, K2	PO9
3	Explain prevention and control of communicable diseases like cholera and influenza.	10	CO3	K1, K2	PO4
4	Describe objectives, functioning, outcomes of National Health Programmes in India.	10	CO2	K1, K6	PO1, PO5

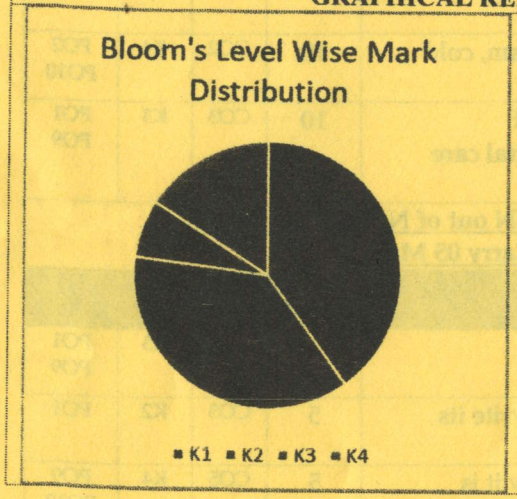
Section C (Answer any SEVEN out of NINE) – 35 Marks
(Each question Carry 05 Marks)

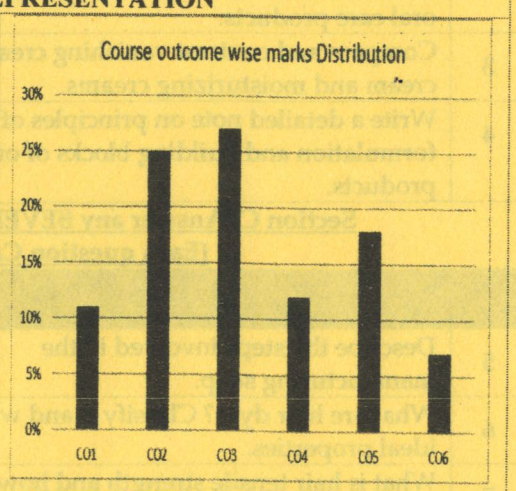
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Write a short note on balanced diet.	5	CO4	K2, K1	PO9
6	Define public health and explain its scope and evaluation.	5	CO5	K1, K2	PO1
7	Explain National Malaria Prevention Programme.	5	CO3	K3, K4	PO1
8	Write about drug abuse and its effects.	5	CO3	K1, K6	PO2

CO- Course Outcomes, **KL**- Knowledge Level, **PO** – Program Outcome

Course Outcomes	CO1	Explain Knowledge of regulations and guidelines of cosmetics. To have a thorough understanding about the ingredients of cosmetics. To understand the anatomy and physiology of skin, hair and oral cavity.
	CO2	Understand the principles of formulation and building blocks of skin care products
	CO3	Understand the principles of formulation and building blocks of hair and dental care products
	CO4	Understand the role of herbs in cosmetics
	CO5	Understand the principles of Cosmetic evaluation
	CO6	Understand the Cosmetic problems associated with Hair and skin.

GRAPHICAL REPRESENTATION





ARKA JAIN University
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[07-05-2026]
END SEM EXAMINATION
School of Health & Allied Sciences

Program	**Bachelor of Pharmacy**		
Subject Name	**Cosmetic Science - Theory**	**Session**	**Even, 2025-26**
Semester	**VIII**	**Year**	**April, 2026**
Time: 3 Hour Max. Marks : 75	• Start writing from 2nd page onwards; **don't Write on the 1st Page Backside** • **Answer all Questions of Section A (Compulsory)** • **Answer Any *Two* out of *Three* of Section B** • **Answer Any *Seven* out of *Nine* of Section C** • **Possession of Mobile Phones** or any kind of **Written Material, Arguments with the Invigilator or Discussing with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Papers.**		
Knowledge Level (KL)	**K1** : Remembering	**K3** : Applying	**K5** : Evaluating
	K2 : Understanding	**K4** : Analysing	**K6** : Creating

Section A (Each question Carry 01 Mark from Q1-i to xx) – 20 Marks

Q. N 1	QUESTIONS	Marks	COs	KL	PO
i	Comedogenic substances cause: a) Dry skin b) Acne formation c) Wrinkles d) Hair fall	1	CO6	K1	PO1
ii	Antiperspirants act by: a) Killing bacteria only b) Blocking sweat glands c) Increasing sweat d) Hydrating skin	1	CO3	K1	PO1
iii	TEWL refers to: a) Water intake b) Water loss through skin c) Oil secretion d) Sweat production	1	CO1	K1	PO1
iv	Advantage of face wash: a) High oil content b) Better cleansing than soap c) No surfactants d) Causes dryness always	1	CO2	K2	PO1
v	Hair shaft is mainly composed of: a) Lipids b) Keratin c) Collagen d) Melanin	1	CO1	K1	PO1
vi	Sebaceous glands secrete: a) Sweat b) Sebum	1	CO1	K1	PO1

	c) Keratin d) Collagen				
vii	The outermost layer of skin is: a) Dermis b) Hypodermis c) Epidermis d) Stratum basale	1	CO1	K1	PO1
viii	Emollients help in: a) Drying skin b) Softening skin c) Cleansing d) Coloring	1	CO2	K2	PO1
ix	As per Indian regulations, cosmetics are defined as products intended for: a) Treating diseases b) Cleansing, beautifying, or altering appearance c) Diagnosing diseases d) Preventing infections	1	CO1	K1	PO1
x	Rheology modifiers are used to: a) Increase fragrance b) Control viscosity c) Add color d) Prevent microbial growth	1	CO2	K2	PO1
xi	Surfactants are mainly used for: a) Moisturizing b) Cleansing c) Coloring d) Preserving	1	CO2	K1	PO1
xii	Example of humectant: a) Paraffin b) Glycerin c) Talc d) Zinc oxide	1	CO2	K1	PO1
xiii	Preservatives are added to: a) Increase thickness b) Prevent microbial contamination c) Enhance fragrance d) Add shine	1	CO2	K1	PO1
xiv	Conditioning shampoos contain: a) Strong detergents b) Conditioning agents c) Preservatives only d) Alcohol	1	CO3	K2	PO1
xv	Vanishing cream is: a) W/O emulsion b) O/W emulsion c) Oil-based cream d) Wax-based cream	1	CO2	K1	PO1
xvi	Para-phenylenediamine (PPD) is used in: a) Shampoo b) Hair dye c) Toothpaste d) Sunscreen	1	CO3	K1	PO1
xvii	PPD works by: a) Bleaching hair b) Oxidation reaction c) Hydration d) Reduction	1	CO3	K2	PO1
xviii	Neem in oral care acts as: a) Flavoring agent b) Antimicrobial agent	1	CO4	K2	PO1
	c) Coloring agent d) Thickener				
xix	SPF stands for: a) Skin Protection Factor b) Sun Protection Factor c) Sun Power Formula d) Skin Power Factor	1	CO2	K1	PO1
xx	Sebumeter measures a) Skin hydration b) Sebum content c) Skin color d) TEWL	1	CO5	K2	PO10

Section B (Answer any TWO out of THREE) – 20 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	CO	KL	PO
2	What are herbal cosmetics? Explain in details the role of various herbs used in skin, hair and oral care products.	10	CO4	K2	PO1 PO7
3	Compare and contrast vanishing cream, cold cream and moisturizing creams.	10	CO2	K4	PO2 PO10
4	Write a detailed note on principles of formulation and building blocks of oral care products.	10	CO3	K3	PO1 PO9

Section C (Answer any SEVEN out of NINE) – 35Marks
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	CO	KL	PO
5	Describe the steps involved in the manufacturing soap.	5	CO2	K3	PO1 PO9
6	What are hair dyes? Classify it and write its ideal properties.	5	CO3	K2	PO1
7	What is hair tensile strength and how it is measured?	5	CO5	K4	PO9 PO10
8	Explain the mechanism of action of Deodorants.	5	CO3	K2	PO1
9	What is TEWL and how it is measure?	5	CO5	K4	PO9 PO10
10	Differentiate between sebumeter and corneometer.	5	CO5	K4	PO10
11	What is dry skin and give the causes for dry skin?	5	CO6	K2	PO1 PO2
12	Write a short note on SPF and classify it.	5	CO2	K2	PO1
13	Differentiate cosmetics and cosmeceuticals.	5	CO1	K4	PO2

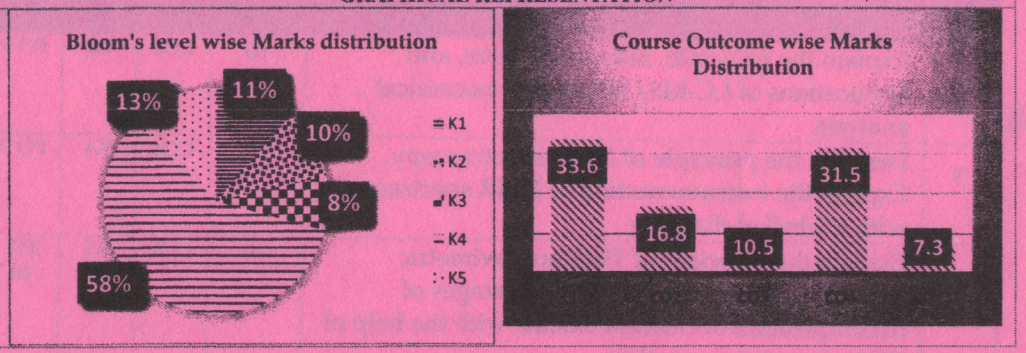
Section C (Answer any SEVEN out of NINE) – 35Marks
(Each question Carry 05 Marks)

5	Discuss the calibration procedure of an Electronic Balance.	5	CO3	K4	PO8
6	Write a brief note on the generation of X-rays in X-Ray Diffraction (XRD).	5	CO1	K3	PO9
7	Describe the steps involved in Solid Phase Extraction (SPE) and discuss its applications.	5	CO4	K4	PO 10
8	Compare competitive and non-competitive methods used in RIA.	5	CO5	K3	PO8
9	Describe Electron Impact (EI) ionization technique.	5	CO4	K4	PO1 0
10	Write the applications of GC-MS/MS in drug analysis.	5	CO2	K3	PO8
11	Describe the applications of Differential Scanning Calorimetry (DSC)	5	CO1	K3	PO8
12	Discuss the factors affecting extraction efficiency in LLE.	5	CO4	K4	PO9
13	Write a short note on chemical shift in NMR spectroscopy.	5	CO1	K4	PO9

CO- Course Outcomes, **KL**- Knowledge Level, **PO** – Program Outcome

Course Outcomes	CO1	Understand the advanced instruments used and its applications in drug analysis.
	CO2	Understand the chromatographic separation and analysis of drugs.
	CO3	Apply the calibration of various analytical instruments.
	CO4	Analysis of drugs using various analytical instruments.
	CO5	Understand the basic principle instruction application of Radioimmunoassay.

GRAPHICAL REPRESENTATION



JGI **ARKA JAIN University** Jharkhand | NAAC GRADE A ACCREDITED UNIVERSITY

[09-05-2026]
END SEM EXAMINATION
School of Health & Allied Sciences

Program	**Bachelor of Pharmacy**		
Subject Name	**Advanced Instrumentation Techniques**	**Session**	**Even, 2025-26**
Semester	**VIII**	**Year**	**April, 2026**
Time: 3 Hour Max. Marks : 75	• Start writing from 2nd page onwards; **don't Write on the 1st Page Backside** • **Answer all Questions of Section A (Compulsory)** • **Answer Any *Two* out of *Three* of Section B** • **Answer Any *Seven* out of *Nine* of Section C** • **Possession of Mobile Phones** or any kind of **Written Material, Arguments with the Invigilator or Discussing with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Papers**.		
Knowledge Level (KL)	**K1** : Remembering	**K3** : Applying	**K5** : Evaluating
	K2 : Understanding	**K4** : Analysing	**K6** : Creating

Section A (Each question Carry 01 Mark from Q1-i to xx) – 20 Marks

Q. N 1	QUESTIONS	Marks	COs	KL	PO
i	Detection in Radioimmunoassay (RIA) is typically carried out by using: a) UV detector b) Flame ionization detector c) Gamma counter d) IR detector	1	CO5	K1	PO 8
ii	Bragg's Law establishes a relationship between: a) Mass and temperature b) Wavelength and lattice spacing c) Pressure and volume d) Heat and temperature	1	CO1	K1	PO 1
iii	Which type of balance in a thermobalance operates by restoring the system to a null position using a compensating force? a) Beam balance b) Cantilever balance c) Null-point balance d) Torsion balance	1	CO1	K2	PO 8
iv	Which type of label is commonly used in Radioimmunoassay (RIA)? a) Dye b) Enzyme c) Radioisotope d) Metal ion	1	CO5	K1	PO8
v	Calibration of analytical instruments ensures: a) Accuracy of results b) Increased cost c) Faster analysis d) Reduced sensitivity	1	CO3	K2	PO 8

vi	The most intense peak in a mass spectrum is referred as the: a) Molecular peak b) Base peak c) Valley peak d) Isotope peak	1	CO4	K1	PO 9
vii	Which of the following is NOT a validation parameter under analytical method validation? a) Accuracy b) Sensitivity of detector c) Robustness d) Limit of Quantitation	1	CO3	K2	PO 2
viii	What is another name for T_1 relaxation in NMR? a) Spin-spin relaxation b) Longitudinal relaxation c) Transverse relaxation d) Chemical relaxation	1	CO1	K1	PO 8
ix	Time of Flight (TOF) analyzer measures: a) Ion intensity b) Time taken by ions to reach detector c) Energy of ions d) Voltage	1	CO4	K1	PO 10
x	According to the ALCOA+ principle, the term "Contemporaneous" means: a) Data must be recorded clearly b) Data must be recorded at the time of activity c) Data must be original d) Data must be consistent	1	CO3	K1	PO 8
xi	Spin-spin coupling results in: a) Peak broadening b) Signal splitting c) Noise d) Absorption	1	CO4	K2	PO 8
xii	The major advantage of hyphenated techniques in pharmaceutical analysis is: a) Reduced cost b) High accuracy with structural information c) Simple instrumentation d) Low sensitivity	1	CO2	K3	PO 8
xiii	Which type of solvent is most used in Liquid-Liquid Extraction (LLE)? a) Water only b) Immiscible organic solvent c) Acid only d) Buffer only	1	CO4	K3	PO 8
xiv	Chemical Ionization is termed a "soft ionization technique" because it: a) Produces highly energetic ions b) Causes extensive fragmentation c) Produces minimal fragmentation d) Generates radical cations	1	CO1	K1	PO 2
xv	Which ion is most commonly formed during Positive Chemical Ionization using methane? a) $M^{\bullet+}$ b) $[M+H]^+$ c) $[M-H]^-$ d) M^{2+}	1	CO4	K2	PO 9
xvi	In Differential Scanning Calorimetry (DSC), glass transition is observed as: a) A peak b) A plateau c) A baseline shift d) No change	1	CO1	K2	PO 8
xvii	A triplet signal in ^{1}H-NMR indicates: a) No neighboring protons b) One neighboring proton c) Two neighboring protons d) Three neighboring protons	1	CO1	K2	PO 8
xviii	The lowest amount of analyte that can be detected but not necessarily quantified is: a) LOQ b) LOD c) Range d) Linearity	1	CO3	K1	PO 1
xix	In NMR spectroscopy, chemical shift increases with: a) Shielding b) Deshielding c) Decrease in temperature d) Increase in pressure	1	CO1	K4	PO 9
xx	Revalidation is generally required when: a) SOP is revised b) Analyst is changed c) Significant changes occur in process or equipment d) Instrument is calibrated	1	CO3	K2	PO 3

Section B (Answer any TWO out of THREE) – 20 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Explain the principle, instrumentation, and applications of LC-MS/MS in pharmaceutical analysis.	10	CO2	K4	PO 9
3	Describe the principle of NMR spectroscopy. Explain the instrumentation of NMR spectroscopy with a labelled diagram.	10	CO4	K4	PO 9
4	Explain the principle of Thermogravimetric Analysis (TGA). Also describe the stages of decomposition of calcium oxalate with the help of TGA curve interpretation.	10	CO1	K5	PO 10

JGI	**ARKA JAIN University** Jharkhand | NAAC GRADE A ACCREDITED UNIVERSITY		[01-05-2026] END SEM EXAMINATION School of Health & Allied Sciences
Program	**Bachelor of Pharmacy**		
Subject Name	**Biostatistics and Research Methodology – Theory**	**Session**	**Even, 2025-26**
Semester	**VIII**	**Year**	**April, 2026**
Time: 3 Hour Max. Marks: 75	• Start writing from 2nd page onwards; don't Write on the 1st Page Backside • Answer all Questions of Section A (Compulsory) • Answer Any *Two* out of *Three* of Section B • Answer Any *Seven* out of *Nine* of Section C • Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will Result in the Cancellation of the Paper.		
Knowledge Level (KL)	**K1** : Remembering	**K3** : Applying	**K5** : Evaluating
	K2 : Understanding	**K4** : Analysing	**K6** : Creating

Section A (Each question Carry 01 Mark from Q1-i to xx) – 20 Marks

Q. N 1	QUESTIONS	Marks	Cos	KL	PO
i	In a histogram, the area of each rectangle is proportional to a. The class mark of the corresponding class interval b. The class size of the corresponding class interval c. Frequency of the corresponding class interval d. Cumulative Frequency of the corresponding class interval	1	CO1	K2, K1	PO8
ii	In which of the following average grouping method is used a. Mean b. median c. mode d. none of these	1	CO1	K2, K1	PO3
iii	Two dice are tossed. What is the probability that the total is divisible by 3 or 4? a. 4/9 b. 5/9 c. 2/9 d. 7/9	1	CO2	K3, K2, K5	PO2
iv	Which one is called non-probability sampling? a. Quota sampling b. Cluster sampling c. Systematic sampling d. Stratified random	1	CO2	K2	PO2

3	A drug is given to 08 patients and differences in their BP were recorded. Calculate the efficiency of drug.(5% level, 6 d.f. t is 1.993) Before: 112, 113, 118, 120, 119, 113, 110, 122 After: 116, 120, 117, 125, 126, 111, 111, 117	10	CO6	K3, K6	P
4	A pharmaceutical company developed two different tablet formulations (A and B) of a new drug. To compare the dissolution rates of these formulations, a study was conducted. Formulation A: 5, 10, 10, 15, 5 Formulation B: 10, 5, 10, 15, 15 Which Formulation is more consistent from above dissolution profile data?	10	CO6	K3, K4, K5, K6	P(

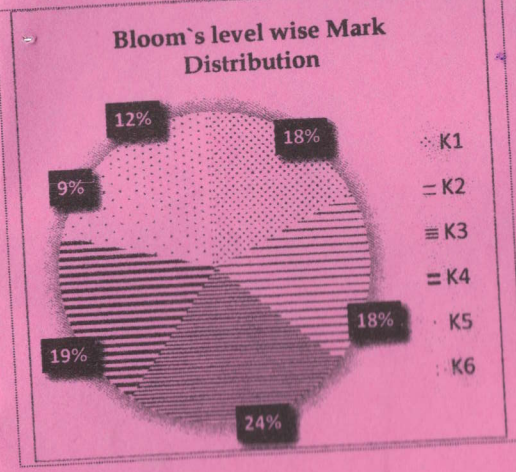
Section C (answer any SEVEN out of NINE) – 35 marks
(each question carry 05 marks)

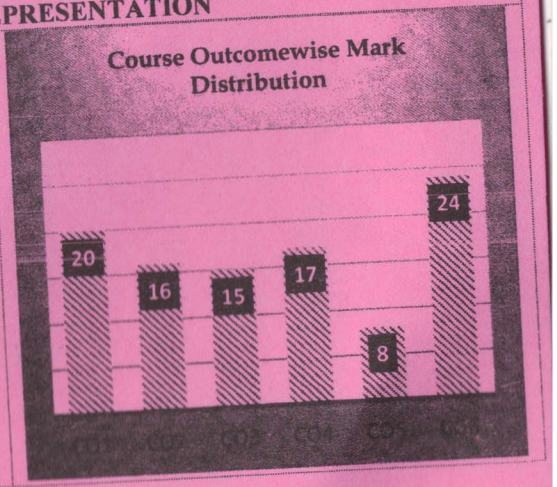
NO	QUESTIONS	Marks	Cos	KL	PO
5	Explain briefly about Response surface methodology.	5	CO4	K2, K4	PO
6	Explain sampling and different types of sampling techniques.	5	CO2	K1	PO2
7	Explain different types of non-parametric test.	5	CO3	K3, K5	PO1
8	How do you write the report writing in research design?	5	CO4	K1	PO2
9	Explain different types of fractional factorial design.	5	CO5	K2, K3	PO2
10	An HPLC method tests a drug formulation. The measured concentrations (%) are: 98.5, 99.1, 98.8, 98.7, 99.2, 98.9. Calculate SD.	5	CO2	K4, K6	PO4
11	What are the main features of good research design?	5	CO4	K1, K3, K4	PO7
12	Explain the merits and demerits of mean, median and mode.	5	CO1	K6, K2. K3	PO2
13	Differentiate between null and alternate hypothesis.	5	CO3	K1, K3	PO2

Course Outcomes, **KL**- Knowledge Level, **PO** – Program Outcome

Course Outcomes	CO1	Understand basic needs of Statistics and Biostatistics. Learn concept of Frequency distribution, Measures of central tendency, Measures of dispersion and Correlation
	CO2	Learn basics of Regression, Parametric test and probability distribution with examples
	CO3	Learn the basics of Non-Parametric tests with examples. Learn the application of biostatistics for assessing the pharmaceutical experimental data by Curve fitting. Understand the basic need for research; protocol preparation, Experiential Design Technique, plagiarism and representation of data
	CO4	Learn basics of Blocking design and Hypothesis testing in Simple and Multiple regression models.
	CO5	Learn the confounding system for Two-level factorial design and Advantage of factorial design. Learn the basics of Response Surface methodology
	CO6	Understand the applications of Biostatics in Pharmacy. Appreciate statistical techniques in solving the problems

GRAPHICAL REPRESENTATION





	sampling				
v	Which non-parametric test is used to compare two related samples? a. Kruskal-Wallis test b. Wilcoxon signed-rank test c. Mann-Whitney U test d. Chi-square test	1	CO3	K2, K1	PO
vi	What are the factors in a factorial design? a. The independent variables b. The dependent variables c. The organismic variables d. The experimental variables	1	CO5	K1, K2	PO
vii	Simple arithmetic mean of 2, 8, 7, 3, 4.2, 6.1, 8.2, 7.1, 10, 9 is _____ a. 4.64 b. 7.46 c. 8.64 d. 6.46	1	CO6	K5, K6	PO
viii	Calculate median of the following data gives the height of five student in c.m., 168, 173, 153, 164, 158 a. 153 b. 173 c. 168 d. 164	1	CO6	K1, K4	PO
ix	Statistical methods that require very few, if any, assumptions about the population distribution are known as: a. Parametric methods b. Non-parametric methods c. Free methods d. Descriptive methods	1	CO3	K2, K3	PO1 0
x	t-Test belongs to which of the following test? a. parametric b. non-parametric c. linear d. non-linear	1	CO2	K2, K3	PO1
xi	What are the basic principles of design of an experiment? a. Randomization b. Replication c. Blocking d. All the above	1	CO5	K1, K2	PO2
xii	What is the name of the conceptual framework in which the research is carried out? a. Research hypothesis b. Synopsis of Research c. Research paradigm d. Research design	1	CO3	K3	PO1
xiii	The square of standard deviation is called _____ a. Quartile deviation b. Mean absolute deviation c. Range d. Variance	1	CO1	K1, K2	PO2
xiv	During experimental design, a variable is defined as: a. Treatment b. Factor c. Variance d. None of these	1	CO4	K3, K4	PO1
	What is probability of head when tossing coin one time? a. 1 b. 2 c. 1.5 d. 0.5	1	CO2	K1, K2	PO2
	Pearson correlation coefficient, denoted by r, measures a. The scattering strength of data for a statistical series b. The strength of the correlation between the mean and median c. The strength of the correlation between two numerical parameters d. The tendency of simultaneous increase or decrease, or inverse evolution, for two numerical parameters	1	CO5	K2, K3	PO2
vii	If the correlation coefficient is zero, the slope of a linear regression line will be a. Positive b. Negative c. Positive or negative d. None	1	CO1	K2, K3	PO2
vii i	SPSS stands for a. Simple perfect squared square b. Statistical product and service solutions c. Statistical package for social science d. Software package for statistical science	1	CO4	K4	PO2
xix	When two coins are tossed simultaneously, what are the chances of getting atleast one tail? a. 3/4 b. 1/5 c. 4/5 d. 1/4	1	CO4	K4, K5	PO1
xx	What must you include when reporting an ANOVA? a. Standard deviations, Degrees of freedom, Means, F statistic, P value b. Standard deviations, Means, F statistic, P value c. Standard deviations, Degrees of freedom, Means, F statistic d. Degrees of freedom, F statistic, P value	1	CO3	K4, K5	PO1

Section B (Answer any TWO out of THREE) – 20 Marks
(each question carry 10 marks)

Q. NO.	QUESTIONS	Marks	Cos	K1	PO
2	Changes of the Acid pH level in the stomach after administration of PPI drugs. Construct the frequency table and find the SD value. 1.5 3.5 2.0 2.5 3.0 3.5 2.5 3.5 2.5 2.0 2.5 3.5 2.5 3.0 3.0	10	CO1	K1, K2, K4	PO1