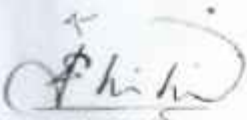


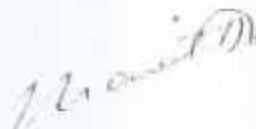
**PROFESSIONAL SECTION**  
**REGULAR EXAMINATION NOTICE**  
**FY & SY SEM-II & IV**

All the students of First Year & Second Year (BMS/BAMMC/BScIT/BScDS) are hereby informed that their Semester End Examination for Sem-II & IV (Regular) will be commencing from 27<sup>th</sup> March 2024.

Timetable will be displayed on notice board.

  
Prof. Shahid Pervez  
Chairman Exam Committee  
Professional Courses

  
Prof. (Dr.) Hanif Lakdawala  
Asst. Director  
Professional Courses

  
Prof. (Dr.) Shaukat Ali  
Principal



*Anjuman Iqbal's*  
AKBAR PEERBHOY COLLEGE OF COMMERCE AND ECONOMICS

PROFESSIONAL SECTION

22 (02) 2024

**Time Table - S. Y. B. Sc. (I.T.) Semester-IV (Regular) March-2024**

Sr. No.	Date	Day	Name of the Subjects	Time	Duration
1	27-03-2024	Wednesday	Software Engineering	11:30 am to 02:00 pm	2 ½ Hrs
2	28-03-2024	Thursday	Core Java ✓	11:30 am to 02:00 pm	2 ½ Hrs
3	30-03-2024	Saturday	Computer Graphics ✓	11:30 am to 02:00 pm	2 ½ Hrs
4	01-04-2024	Monday	Embedded Systems ✓	11:30 am to 02:00 pm	2 ½ Hrs
5	02-04-2024	Tuesday	Computer Oriented Statistical Tech. ✓	11:30 am to 02:00 pm	2 ½ Hrs



# Akbar Peerbhoy College of Commerce & Eco.

S. Y. B. Sc. IT SEM I CBGS

75 Marks

Subject: Core Java

Date: \_\_\_\_\_

Duration: 02 ½ Hours

Roll Number: \_\_\_\_\_

Note: All questions are compulsory.

<b>1</b>	<b>Attempt any THREE of the following</b>	<b>15</b>
A	Briefly Explain the History of java.	
B	Why java is called as platform independent language? Explain.	
C	Explain the architecture of JVM using suitable diagram	
D	Write a java program to declare a class Rectangle storing two integer variable length and breadth. Define 3 constructors: one default, one parametrised and one copy constructor. Also define a method showArea() to display area of rectangle. Create THREE objects: One with default setting length and breadth ZERO, one with providing value during object creation and the third object will be created using the second object. Display the area of all 3 rectangles.	
E	How the Garbage collection works in JVM. Explain.	
F	List and explain the different classes available in java.	
<b>2</b>	<b>Attempt any THREE of the following</b>	<b>15</b>
A	What is access specifier in java? How the access modifier defines the life time and access to a class member? Explain.	
B	Write a short note on abstract methods and abstract classes in java.	
C	What is multilevel inheritance. Explain using suitable example.	
D	Create class Car with a String variable named Model and a show() to display "I am a CAR" msg on screen. Create a class BMW by extending Car and override the show() to display message "This is a BMW car". Write a main method to create an object BMW and call show().	
E	What are the features of members in an interface declared in java program? Explain.	
F	Differentiate between Abstract Classes and Interfaces in java.	
<b>3</b>	<b>Attempt any THREE of the following</b>	<b>15</b>
A	Define Exception. How exceptions are handled by JVM? Explain.	
B	List any 5 built-in exceptions in java. Also explain the use of those exceptions.	
C	Define Thread. Explain the life cycle of a thread.	
D	Define package. List and explain any five built-in packages in java.	
E	Create a user defined exception "INVALID_VOTER_AGE" to check if the age entered by user is less than 18. Also write a program to demonstrate the	
F	What is the default modifier for java variable or method? What is the visibility of such class member? Explain.	
<b>4</b>	<b>Attempt any THREE of the following</b>	<b>15</b>
A	Write a short note on Java Foundation classes.	
B	Explain JLabel class using suitable example.	
C	Write a program to demonstrate the use of Grid layout of 5 rows and 5 columns.	
D	What is Delegation Event Model? Explain.	
E	Explain the use of FocusEvent in GUI program.	
F	What are the four important components of a GUI program? Explain.	
<b>5</b>	<b>Attempt any THREE of the following</b>	<b>15</b>
A	Write a short note on JScrollPane.	
B	Explain the use of FileChooser in Swing program using suitable example.	
C	How to show elements in a JTree explain.	
D	Explain the four type of JDBC Drivers.	
E	Write a short note on java.sql package.	
F	Write a short note on JDBC API	





# Akbar Peerbhoy College of Commerce & Eco.

S. Y. B. Sc. IT SEM CBGS 75 Marks CGA

Date: \_\_\_\_\_ 2024 Duration: 02 ½ Hours Roll Number: \_\_\_\_\_

Note: All questions are compulsory.

1.	Attempt <i>any three</i> of the following:	15
a.	What is computer graphics? Explain different applications of it	
b.	Explain Video Display Devices?	
c.	Explain the Bresenham's method of Circle drawing	
d.	Explain different classifications of Graphics Software	
e.	Explain different types of CRT Display devices	
f.	Explain Refresh Rate, Video basics and Scan conversion	
2.	Attempt <i>any three</i> of the following:	15
a.	Explain Two-Dimensional Transformations	
b.	Explain Homogeneous Coordinates and Matrix Representation of 2D Transformations	
c.	Explain The Window-to-Viewport Transformations	
d.	Explain Three-Dimensional Rotation	
e.	Explain Three-Dimensional Reflection	
f.	Explain about reflection through an arbitrary plane	
3.	Attempt <i>any three</i> of the following:	15
a.	Explain Radiometry	
b.	What is Photometry?	
c.	Explain Chromaticity Coordinates	
d.	Explain Colorimetry along with Grassmann's law	
e.	Explain and Specifying an Arbitrary 3D View	
f.	Explain Stages in 3D viewing	
4.	Attempt <i>any three</i> of the following:	15
a.	Explain The z-Buffer Algorithm	
b.	Explain the Categories of algorithms in Visible surface	
c.	Explain Painter's algorithms	
d.	Explain Area sub-division method	
e.	Explain BSP trees	
f.	Explain Back face removal	
5.	Attempt <i>any three</i> of the following:	15
a.	What is an Image? Explain Digital image file formats	
b.	Explain working of Image compression standard – JPEG	
c.	What is Computer Animation? Describe four main computer animation approaches.	
d.	Explain the Principles of Animation.	
e.	Describe Key framing and motion control.	
f.	What are Deformations?	



# Akbar Peerbhoy College of Commerce & Eco.

S. Y. B. Sc. IT SEM I CBGS 75 Marks

Subject: Intro. To ES

Date: \_\_\_\_\_ Duration: 02 ½ Hours

Roll Number: \_\_\_\_\_

**Note: All questions are compulsory.**

Q 1. Attempt any 3 out of 6 Questions:

15 Marks

1. Explain the Architecture of Microcontroller.
2. Explain the features of ARM Microcontroller.
3. Explain the difference between ARM and x86.
4. Describe in brief the term Memory Organisation.
5. Write a short note on RAM Allocation in PIC.
6. Write a program in Arduino for blinking single LED.

Q 2. Attempt any 3 out of 6 Questions:

15 Marks

1. Write a program in Arduino for photodiode.
2. Explain Bluetooth in detail along with its working protocol.
3. Write a short note on infrared communication.
4. Explain SPI protocol in detail.
5. Write a short note on UART Protocol.
6. Explain the difference between baseband and broadband.

Q 3. Attempt any 3 out of 6 Questions:

15 Marks

1. Write a program in Arduino for temperature sensor.
2. Explain digital I/O function in detail?
3. What is Arduino? Explain with one code.
4. Write a short note on communication interface.
5. Explain any 2 types of Arduinos in detail.
6. Write a short note on math function?

Q 4. Attempt any 3 out of 6 Questions:

15 Marks

1. Write a short note on light sensor and explain it with a program?
2. What is ultrasonic sensor explain it with the help of example?
3. List down and explain any 3 real life application used by color sensor?
4. Explain the term line tracking sensor? explain with on example?
5. What is biometric sensor explain it functionality also list down it's real life application?
6. Write a program in Arduino Ultrasonic Sensor.

Q 5. Attempt any 3 out of 6 Questions:

15 Marks

1. Write a program in Arduino for Gas Sensor.
2. Explain the history of smart home and smart watch?
3. Explain the working principle of MRI machine?
4. Draw and label neat and clean diagram of MRI machine and microwave oven?
5. Explain the working principle of washing machine with diagram what is smart lock system?
6. Write a short note ATM machine as an embedded system.

-X-X-X-X-X-



A) Attempt any 3 from the following:

Q.1) Find the median of their income:

Income (in 000's)	10-20	20-30	30-40	40-50	50-60
Farmers	20	26	34	14	6

Q.2) The distance covered by 200 public transport buses in a day is shown in the following frequency table. Find the  $P_{70}$  of the distances.

Distances (km)	100-110	110-120	120-130	130-140	140-150
No. of busses	60	100	140	80	20

Q.3) Find  $Q_3$  for the following given data

Milk (in litres)	2-4	4-6	6-8	8-10	10-12
No. of hotels	14	10	30	70	40

Q.4) Find  $D_7$  for the following data:

Class	100-110	110-120	120-130	130-140	140-150
Frequency	30	50	70	40	10

Q.5) State advantage and disadvantage of mean.

Q.6) State advantage and disadvantage of mode.

B) Attempt any 3 from the following:

Q.1) Find first four moments about mean for the set of observations 1, 2, 3, 3, 6.

Q.2) Compute  $S_k$  for the following observations 2, 3, 5, 7, 4, 8, 1.

Q.3) Short note on Kurtosis

Q.4) The data from a survey of 140 students showed that 37 study Music, 103 play a sport and 25 do neither. Create a venn diagram to illustrate the data collected, and then determine the probability that if a student is selected at random.

(a) he or she will study music

(b) he or she will study music given that he or she play a sport

Q.5) Evaluate  $60!$  with Sterling's approximation to  $n!$

Q.6) With the help of data given in Q1 interpret 1st four central moments.

**C) Attempt any 3 from the following:**

Q.1) A survey of 40 retired women revealed the mean age at which their income was maximum to be at 45 years with a standard deviation of 6.3 years. Find 95 % confidence limits for the mean age of maximum earnings of women who survive till they retire.

Q.2) In a study of television viewing habits, order to obtain an interval estimate of the average number of hours per week that teenagers spend watching television programmes, a random sample of 100 teenaged children is taken. Sample investigation revealed a mean of 9.2 hours, with standard deviation of 3.2 hours. Obtain the desired interval estimate with confidence coefficient 0.99.

Q.3) A random sample of 45 individuals selected from a certain population showed that 5 of them are right handers the limits within which the proportion right handers in the population lies almost certainly.

Q.4) A certain coin is showed up head 270 occasions in 500 tosses. Test the claim that the coin is unbiased.

Q.5) Two samples of 150 and 200 balls drawn from two different lots gave 5 % and 7 % defective balls respectively. Test whether both the lost come form the balls manufactured by same process.

Q.6) The mean lifetime of a sample of 100 fluorescent light bulbs produced by a company is found to be 1570 hours with a standard deviation 120 hour test the hypothesis that the mean lifetime bulbs produced by the company is 1600 hours the alternative hypothesis that it is less than 1 at 5 % level or significance.

**D) Attempt any 3 from the following:**

Q.1) Data represent the last digit of the scooter passing at a certain traffic signal; observe during last one hour for 180 scooter.

LAST DIGIT	0	1	2	3	4	5	6	7	8	9
FREQUENCY	12	20	14	12	21	18	17	26	19	21

Claim that all the digits are equally like to occurs at 5% level of significance?

Q.2) As per theorem: the shape and colour of a certain variety of pea that can be classified into four categories round and yellow, Role and blue, Angular and yellow, Angular and blue colour occur in the proportion in 9:3:3:1 test D for sample 128 observed frequencies are:

RY	66	RB	28
AY	29	AB	5

Structure the  $\chi^2$  test for goodness of fit.

Q.3) Four identical coins are tossed 100 times and the following results are obtain:



No. of tails(x)	0	1	2	3	4
Frequency	8	29	40	19	4

Are there sufficient evidences to conclude that the coin is biased at 5 % level of significance?

Q.4) Fit a position distribution to the following data and test the goodness of fit.

X	0	1	2	3	4	5
F	20	34	27	15	3	1

Q.5) Four coins were tossed 100 times with the following results.

No.Of Head	0	1	2	3	4
Frequency	5	20	35	30	10

Test whether they regarded to be un biased.

Q.6) Children have parents of blood groups.m and will always to one of three types M, MN and N the average proportion of these will 1: 2: 1 out of 300 children's having one M Parent and N parent 30 % were found to be type 45% of MN, and remains of MN. use Chi square test hypothesis.

E) Attempt any 3 from the following:

Q.1) Fit a least-squares line to the data: Y as dependant variable.

X	65	63	67	64	68	62	70	66	68
Y	68	66	68	65	69	66	68	65	71

Q.2) Find slope, equation, y - intercept and x - intercept of the line that passes through the points (3, 4) and (2, - 2)

Q.3) Fit a least-squares line to the data

X	1	3	4	6	8	9	11	14
Y	2	4	5	6	7	10	9	12

By using X as the independent variable

Q.4) Fit a least-squares line to the data:

X	1	3	4	6	8	9	11	14
Y	2	4	5	6	7	10	9	12

X as dependant variable.

Q.5) Find x if y=70

X	65	63	67	64	68	62	70	66	68
Y	68	66	68	65	69	66	68	65	71

Q.6) Find y if x =100

X	65	63	67	64	68	62	70	66	68
Y	68	66	68	65	69	66	68	65	71

---X---X---