SYIT

ATKT

Examination

Sem IV

October-2024

SY I.T ATKT
03/10/24

D.B.J. College, Chiplun
Sem-IV ATKT Exam. Oct.-24
Class:- SY I.T Subject:- Core Java
Paper no:- I Date:- 3/10/2024

Duration: 2.30 Hrs. Time:- 2.00pm to 4.30pm **Full Marks: 75**

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Instructions: (1) All questions are compulsory.
(2) Numbers to the right indicate marks.

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Q.1) Attempt any three of the following: 15

A) Write note on the following terms:
1. JDK 2. JRE 3. JVM
B) List and explain the Access Modifiers in Java.
C) Describe the structure of java program.
D) Write a program to implement use of **super** instance.
E) What is Java API? Explain in detail.
F) How to implement method overloading in Java.

Q.2) Attempt any three of the following: 15

A) Differentiate between Classes and Interface.
B) Explain **this** and **super** keywords in inheritance with example.
C) Explain the ways to achieve the multiple inheritance by interface in java.
D) What is an interface? How we can implement interface?
E) Write a program to implement the concept of single level inheritance.
F) What is inheritance? Explain with its types.

Q.3) Attempt any three of the following: 15

A) Explain the types of packages supported in Java.
B) What are the ways to create thread? Explain.
C) Explain life cycle of a thread.
D) What are the ways to access the package from outside the package?
E) List and explain any three built-in exception in detail.
F) Write short note on exception types.

Q.4) Attempt any three of the following: 15

A) Difference between AWT and Swing.
B) Write a short note on Swing Components classes.
C) With an example explain JLabel control.
D) Write short note on Adapter classes.
E) Explain with an example FlowLayout Management.
F) Explain three parts of event delegation model.

Q.5) Attempt any three of the following: 15

A) With an example explain JColorChooser class with an example
B) What is JList? Explain its constructors. Give simple example for creation of JList.
C) Write the steps for Java Database Connectivity.
D) Write a program to demonstrate the JScrollPane class.
E) What is JDBC? Explain architechture of JDBC in detail.
F) Write short note on JDBC Driver with its type and advantages.

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ATKT SYBSC. I.T
4/10/24

D. B.J. College, Chiplun
Sem-IV ATKT Exam. Oct. 2024 Class:-S.Y.I.T.
Subject:- Introduction to Embedded Systems Paper-II

Duration: 2.30 Hrs. Time:- 2:00 P.M. To 4:30 P.M. **Max. Marks: 75**

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Instructions: (1) All questions are compulsory.

(2) Numbers to the right indicate marks.

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Q.1 **Attempt any *THREE* of the following:** **(15)**

A] List and explain the features of PIC18f458 controller.
B] Differentiate between RISC and CISC processor.
C] Draw the data flow model of ARM core architecture.
D] Explain the pipelining concept used by an ARM architecture.
E] Write a C program to generate a square wave on all pins of PORT A.
F] With a block diagram explain the memory organisation of PIC controller.

Q.2 **Attempt any *THREE* of the following:** **(15)**

A] Draw and explain the interfacing of Zigbee module with its protocol.
B] Differentiate between parallel data transfer and serial data transfer.
C] List and explain the RFID pin connection.
D] Explain I2C bus used in serial communication between the integrated circuits.
E] With a diagram explain port expander using PCI bus.
F] Draw and explain the interfacing GPS using UART.

Q.3 **Attempt any *THREE* of the following:** **(15)**

A] Write a short note on Arduino.
B] List and explain the features of arduino.
C] Draw and explain the structure of arduino UNO board.
D] Define Embedded System. State its applications.
E] Explain the basic function of the Arduino programming language.
F] Write a note on DFRobot Romeo BLE All-in-one Microcontroller.

Q.4 **Attempt any *THREE* of the following:** **(15)**

A] Define Sensor. Explain the use of Light Sensitive Sensor in embedded System.
B] Explain the use of Ultrasonic Sensor in Embedded System.
C] Write a note on hall sensor to detect magnetic objects.
D] List and explain the applications of TCS3200 colour sensor in embedded system.
E] Explain the use of DC motor in Embedded System.
F] Write a note on Digital temperature sensor.

Q.5 **Attempt any *THREE* of the following:** **(15)**

A] With a hardware connections explain 2.4 G wireless radio frequency module.
B] Explain the use of Bluetooth module in embedded system.
C] Write the features of GSM/GPRS module.
D] With a structure diagram explain indoor air quality monitor system using arduino UNO.
E] List and explain the digital pinouts of air quality monitor with arduino UNO.
F] Write a note on IR Transmitter and receiver module.

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ATKT SYBSc IT
5/10/24

D.B.J. College, Chiplun
Sem-IV ATKT Examination oct.-2024
Class:- S.Y.I.T. Subject:- Computer oriented statistical Techniques
Paper No:- III
Date:- 05/10/2024 Time:- 2.00PM to 4.30P.M.

Time : 2.30 Hrs. **Full Marks: 75**

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Instructions:

(1) All questions are compulsory.
(2) Numbers to the right indicate full marks.
(3) Use of scientific calculator is allowed.

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Q.1) Attempt any three of the following: **15**

1. Find weighted mean for the following frequency distribution

Weightage (w)	Candidates		
	A	B	C
6	30	40	33
2	20	10	16
2	10	7	11

2. Find the mode for the following data

Class interval	20-30	30-40	40-50	50-60
Frequency	24	38	23	15

3. Find the median for the following data

Class interval	0-25	25-50	50-75	75-100
Frequency	12	10	15	3

4. Find D_2, D_7, D_9 for the frequency distribution given in the table.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	8-9-	90-100
Frequency	4	9	14	25	18	6	2	1	1	0

5. Calculate variance and standard deviation for the following

x	0	2	4	6	8
f	2	3	5	6	4

6. Find Quartiles, P_{30}.

Age	15-25	25-35	35-45	45-55	55-65
Frequency	20	18	32	18	12

Q.2) Attempt <u>any three</u> of the following: 15

1. The 3 digit number is to be form using the digits from 0-9. How many such numbers can found if repetition of digits is
   (I)Allowed
   (II) not allowed

2. An organization consist of 9 members of which 4 are doctors a selection of 4 persons is to be done among these members. Find how many selections will have
   (I) all 4 are doctors
   (II) atleast 3 doctors
   (III) atmost 1 doctor

3. A perfect cubic die is thrown find the probability that
   (I)an even number comes up
   (II) a perfect square comes up

4. Find the expected value and variance

X	1	2	3	4
P(X)	1/8	1/2	1/8	¼

5. Find first four moments about zero moments for the following frequency distribution.

Class interval	1-3	3-5	5-7	7-9	9-11	11-13	13-15
Frequency	1	3	5	8	4	3	1

6. Find first four moments
   (I)about point 4
   (II)about zero
   (III)about mean for the set of observations 1,2,3,3,6

Q.3) Attempt <u>any three</u> of the following: 15

1. A survey of 40 retired women revealed the mean age at which their income was maximum to be 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.

2. 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

3. In a study of television viewing habits, order to obtain an estimate of the average number of house 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

4. Write down the difference between a point estimate and an interval estimate.

5. For a given sample of 100, 35 are working as a professor. Construct a 95% confidence interval for the probability that almost most of the education people from the samples working as a professor

6. 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 from the balls manufactured by same process.

Q.4) Attempt any three of the following: 15

1. A weekly earnings of 1000 workers are normally distributed with mean Rs. 900 and standard deviation 50. Estimate the number of workers whose weekly earning will be
(I)between Rs.900 and Rs.1000
(II) between Rs.800 and Rs. 1000

2. If x is a chi-square variate with standard deviation 4. Find the mean, median and the mode x.

3. The following results are obtained at the end of term exam of a kind of physiotherapy given to a group of 120 patients and also for another group of 120 patients who were not given the physiotherapy treatment.

	Yes	No
Improved	71	42
Not improved	49	78

Can we conclude at 5% level of significant that the physiotherapy is effective?

4. Write down the properties of Chi-Square distribution

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

6. Using the data given in below table to decide whether we can conclude that standard of a salesman has significant effect on hD performance in field selling at 5% level of significance.

	Performance in field			**Total**
	Disappointing	**Satisfactory**	**Excellent**	
Poor dressed	21	15	6	42
Well dressed	24	35	26	85
Very well dressed	35	80	58	173
total	**80**	**130**	**90**	**300**

Q.5) Attempt any three of the following:

1. The linear trend by the least square method to the following and estimate the trend value for 2008 15

Year	2001	2002	2003	2004	2005	2006	2007
Disinvestment in PSU in crs(y)	265	270	280	290	300	320	310

2. Find the coefficients of regression

X	2	6	8	10
Y	4	3	5	6

Find y, when x = 1.5, and x when y = 3.5

3. Let two regression lines
y on x :5x-2y=7
x on y: 3x-y=5
find, $\bar{x}$, $\bar{y}$, b_{xy} , b_{yx}

4. State the properties of correlation coefficient.

5. For a given data

	X	y
Mean	6	4
Variance	0.5	2.5

And the covariance as 1, find
(I)the equations of the lines of regression
(II)find y, when x=2 and x when y = -1

6. For the data given below

x	2	3	4
Y	3	5	7

Find

(I)the arithmetic means $\bar{x}$, $\bar{y}$
(II) v(x), v(y)
(III) cov(x,y)

SY I.T
7/10/24

D.B.J. College, Chiplun
Sem-IV ATKT Exam. Oct.-2024
Class:- SY IT subject:- Software Engineering

Date: 07/10/2024 Paper-IV
Duration: 2½hrs Time:- 2.00PM to 4.30PM **Max. Marks:** 75

N.B. 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume the necessary data.

Q.1. Attempt any THREE of the following: (15)

a) State the Software Development Life Cycle (SDLC) phases in brief.
b) Differentiate functional and non-functional requirements.
c) What is Software Requirement Specification (SRS)? Describe the characteristics of great SRS good SRS.
d) Define Agility. Describe the major principles of Agile development process.
e) Write a short note on Rapid Application Development (RAD).
f) Explain Extreme Programming (XP) as Agile development model.

Q.2. Attempt any THREE of the following: (15)

a) Explain the phases of requirement engineering.
b) What is socio-technical system? State essential characteristics of socio-technical system.
c) Describe the security terminology and security assurance in detail.
d) Write a short note on legacy system.
e) Illustrate the example of medical system as a safety critical system.
f) Define behavioral model. Explain any one type of behavioral model.

Q.3. Attempt any THREE of the following: (15)

a) Define risk management process. Explain any one phase in detail.
b) Describe various management activities in detail.
c) Define quality. Describe quality challenges with an example.
d) State and explain the User Interface (UI) design principles briefly.
e) Which activities are performed during project scheduling? Describe in detail.
f) Write a short note on software metrics and measurements.

Q.4. Attempt any THREE of the following: (15)

a) Distinguish between Verification and Validation.
b) What is test automation? Explain automated testing process.
c) Explain the concept of software productivity? List the benefits of calculating software productivity.
d) What is automated static analysis? Describe the automated analyzer checklist with fault class.
e) Describe the software inspection process in detail.
f) Define the term 'software measurement'. Which activities are carried out to measure software?

Q.5. Attempt any THREE of the following: (15)

a) Define the term 'processes'. Explain different classes of process.
b) Write a short note on Service Oriented Software Engineering (SOSE).
c) Explain the concept of software reuse.
d) Which designing issues are raised while designing the distributed system? Explain in detail
e) What is process improvement? Describe the stages of process improvement in detail.
f) Discuss client-server computing in brief.

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SYI.T
8/10/24

D.B.J. College, Chiplun
Sem-IV ATKT Exam. Oct.-2024
Class:- SYIT Subject:- Computer Graphics & Animation

Date: 08/10/2024 Paper No:- V
Duration: 2½hrs Time:- 2.00 PM to 4.30 PM **Max. Marks:** 75

N.B. 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume the necessary data.

Q.1. Attempt any THREE of the following: (15)

a) What is computer graphics? Explain Applications of it.
b) Write a short note on working of LCD.
c) Explain basic concept of video in detail.
d) Define the concept of line clipping in detail.
e) Write a short note on DDA line drawing algorithm.
f) What is polygon clipping? Describe polygon clipping in detail.

Q.2. Attempt any THREE of the following: (15)

a) Describe 2D translation in brief.
b) List and explain the basic 2D transformation.
c) Compare and contrast orthographic, Axonometric and oblique projections.
d) Write a short note on rotation about arbitrary point.
e) Distinguish between window port and view port.
f) Explain homogeneous coordinates and matrix representation of transformation.

Q.3. Attempt any THREE of the following: (15)

a) Define camera model in detail.
b) Write a short note on color appearance.
c) Differentiate between radiometry and photometry.
d) List and explain the various stages in 3D clipping.
e) Explain the term view plane coordinate and specifying view volume.
f) What is white balance and grey balance? Describe briefly.

Q.4. Attempt any THREE of the following: (15)

a) List and Explain different types of coherence.
b) Discuss the cubic spline in detail.
c) Explain z-buffer algorithm in detail.
d) What is Bezier curve? Explain in detail.
e) Define the parametric equation for parabola and ellipse.
f) Write a short note on back face detection method.

Q.5. Attempt any THREE of the following: (15)

a) List and Explain types of animation.
b) Write a short note on basic principle of animation.
c) Explain the concept of deformation effect.
d) Explain the procedure of character animation.
e) Write a short note on physically based animation in gaming and suimulation.
f) describe the categories of procedural animation in detail.

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