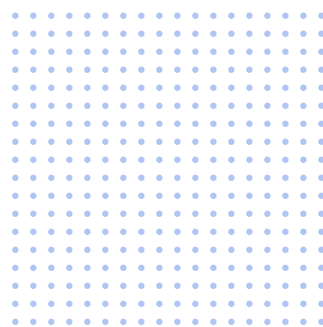




FOR JNUEE EXAM PREPARATION

JNUEE 2022 Question Paper · Ph.D Part A - common questions for Computer Sciences and Microsystems

EXAM	YEAR	TYPE
JNUEE	2022	Question Paper

SUBJECT
Ph.D Part A - common questions for Computer Sciences and Microsystems

Test Date : 09 Dec 2022**Test Slot : slot 1****Subject : ACMS-Part A Common Qns for Computer/Micro Systems****Sl. No.1****QBID:1022001**

What is the role of 'local control' in design of experiment?

1. To infer whether the differences in treatment means are actually more
2. To maintain greater homogeneity of experimental units within a block of an experiment
3. To differentiate between experiment and trial
4. To infer whether the differences in treatment means are actually less

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11601]

2[Option ID=11602]

3[Option ID=11603]

4[Option ID=11604]

Sl. No.2**QBID:1022002**What is **NOT** the role of randomization in the process of experimentation?

1. Randomization eliminates the human biases.
2. Randomization makes the experiment free from any systematic influences of environment.
3. Randomization enables to apply mathematical theories which would have otherwise not been possible.
4. Randomization is a factor allocated to one or more experimental units to estimate its effect pertaining to certain character.

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11605]

2[Option ID=11606]

3[Option ID=11607]

4[Option ID=11608]

Sl. No.3**QBID:1022003**

Solomon Four-Group Design used to determine treatment effect of experimental and control groups. It is used to measure -

1. The effect of post-test sensitization on the dependent variable.
2. The effect of post-test sensitization on the independent variable.
3. The effect of pretest sensitization on the dependent variable.
4. The effect of pretest sensitization on the independent variable.

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11609]

2[Option ID=11610]

3[Option ID=11611]

4[Option ID=11612]

Sl. No.4

QBID:1022004

Which of the following are the categories of Non-Random Sampling?

- A. Convenience Sampling
- B. Snowball Sampling
- C. Cluster Sampling

Choose the correct answer from the options given below-

1. A Only
2. B Only
3. A and B Only
4. C Only

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11613]

2[Option ID=11614]

3[Option ID=11615]

4[Option ID=11616]

Sl. No.5

QBID:1022005

In which of the following sampling, there is NO involvement of probability?

1. SRSWOR
2. Purposive sampling
3. SRSWR
4. Both SRSWOR and SRSWR

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11617]

2[Option ID=11618]

3[Option ID=11619]
4[Option ID=11620]

Sl. No.6
QBID:1022006

We have two types of parameters, the Estimate Parameter and the Population Parameter. The discrepancy between these two parameters is known as-

1. Non-Sampling Error
2. Sampling Error
3. Formula Error
4. Both Sampling and Non-Sampling Error

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=11621]
2[Option ID=11622]
3[Option ID=11623]
4[Option ID=11624]

Sl. No.7
QBID:1022007

Which of the following is a probability sampling method?

- A. Simple random sampling
- B. Systematic Random sampling
- C. Stratified sampling

Choose the correct answer from the options given below-

1. B Only
2. A and B Only
3. C Only
4. A, B, and C

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=11625]
2[Option ID=11626]
3[Option ID=11627]
4[Option ID=11628]

Sl. No.8
QBID:1022008

When using probability methods in sampling, bias may occur, if the Estimate differs from the parameter. Which one of the following is the correct formula to calculate Estimate?

1. Estimate=parameter + bias+ chance error
2. Estimate=parameter + bias
3. Estimate=parameter +chance error
4. Estimate= bias+ chance error

- (1) 1
(2) 2
(3) 3

(4) 4

1[Option ID=11629]
 2[Option ID=11630]
 3[Option ID=11631]
 4[Option ID=11632]

Sl. No.9

QBID:1022009

The main aim of the scientific method in the research field is to -

1. Improve data interpretation
2. Confirm triangulation
3. Introduce new variable
4. Eliminate spurious relations

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11633]
 2[Option ID=11634]
 3[Option ID=11635]
 4[Option ID=11636]

Sl. No.10

QBID:1022010

Least square method uses -

1. Linear polynomial
2. Linear regression
3. Non-linear sequence
4. Non-linear method

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11637]
 2[Option ID=11638]
 3[Option ID=11639]
 4[Option ID=11640]

Sl. No.11

QBID:1022011

The error committed by rejecting an applicant who would have been successful on the job is called -

1. True Negative Error
2. False Negative Error
3. False Positive Error
4. True Positive Error

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11641]
 2[Option ID=11642]
 3[Option ID=11643]
 4[Option ID=11644]

Sl. No.12

QBID:1022012

Which of the following is a data visualization method?

1. Circle and Triangle
2. Hexagon
3. Pie Chart and Bar Chart
4. Pentagon

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11645]
 2[Option ID=11646]
 3[Option ID=11647]
 4[Option ID=11648]

Sl. No.13

QBID:1022013

Suppose a number x is chosen from the numbers $-2, -1, 0, 1, 2$. What will be the probability of $x^2 > 0$?

1. $1/5$
2. $2/3$
3. $3/5$
4. $4/5$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11649]
 2[Option ID=11650]
 3[Option ID=11651]
 4[Option ID=11652]

Sl. No.14

QBID:1022014

The F-test -

1. is essentially a two tailed test
2. is essentially a one tailed test
3. can be one tailed as well as two tailed depending on the hypothesis
4. can never be one tailed test

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11653]
2[Option ID=11654]
3[Option ID=11655]
4[Option ID=11656]

Sl. No.15

QBID:1022015

Identifying causes of a problem and possible solution to a problem is-

1. Field Study
2. Diagnosis Study
3. Action Study
4. Pilot Study

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11657]
2[Option ID=11658]
3[Option ID=11659]
4[Option ID=11660]

Sl. No.16

QBID:1022016

Which test is the part of the parametric test?

1. Z- Test
2. Run Test for Randomness
3. Kruskal Willis Test
4. Sign Test

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11661]
2[Option ID=11662]
3[Option ID=11663]
4[Option ID=11664]

Sl. No.17

QBID:1022017

Which scale measurement has a natural Zero?

1. Ratio
2. Nominal
3. Ordinal
4. Interval

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11665]
 2[Option ID=11666]
 3[Option ID=11667]
 4[Option ID=11668]

Sl. No.18

QBID:1022018

The Split Half Method is used as a test of-

1. Stability
2. Internal reliability
3. Inter observer consistency
4. External validity

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11669]
 2[Option ID=11670]
 3[Option ID=11671]
 4[Option ID=11672]

Sl. No.19

QBID:1022019

Random sampling is also called-

1. Availability Sampling
2. Probation Sampling
3. Probability Sampling
4. Prospect Sampling

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11673]
 2[Option ID=11674]
 3[Option ID=11675]
 4[Option ID=11676]

Sl. No.20

QBID:1022020

Which one is the example of distribution free test?

1. Hypothesis testing for difference between means
2. Hypothesis testing of means
3. Test of a hypothesis concerning some single value for the given data
4. Hypothesis testing for comparing two related samples

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11677]
 2[Option ID=11678]
 3[Option ID=11679]
 4[Option ID=11680]

Sl. No.21

QBID:1022021

Given below are two statements:

Statement I: Type I error means accepting the hypothesis which should have been rejected.

Statement II: Type II error means rejection of hypothesis which should have been accepted.

In the light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement I and Statement II are correct
2. Both statement I and Statement II are incorrect
3. Statement I is correct but Statement II is incorrect
4. Statement I is incorrect but Statement II is correct

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11681]
 2[Option ID=11682]
 3[Option ID=11683]
 4[Option ID=11684]

Sl. No.22

QBID:1022022

Hypothesis testing enables us to make-

1. Sampling frame
2. Probability statements about population parameters
3. Confidence level and significance level
4. Point estimate and interval estimation

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11685]
 2[Option ID=11686]
 3[Option ID=11687]
 4[Option ID=11688]

Sl. No.23

QBID:1022023

The hypothesis under test is-

1. Simple Hypothesis
2. Alternative Hypothesis
3. Null Hypothesis
4. Alpha Hypothesis

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11689]

2[Option ID=11690]

3[Option ID=11691]

4[Option ID=11692]

Sl. No.24

QBID:1022024

Which of the following is composite hypothesis?

1. $\mu \geq \mu_0$
2. $\mu \leq \mu_0$
3. $\mu = \mu_0$
4. $\mu \neq \mu_0$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11693]

2[Option ID=11694]

3[Option ID=11695]

4[Option ID=11696]

Sl. No.25

QBID:1022025

A test procedure δ for testing a hypothesis about a parameter θ whose risk is not more than the risk of any test procedures δ' for all θ and is definitely less for some θ is called:

1. Minimax test
2. Admissible test
3. Most powerful test
4. Optimum test

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11697]

2[Option ID=11698]

3[Option ID=11699]

4[Option ID=11700]

Sl. No.26

QBID:1022026

The value of the differentiation $f(x) = \sin[x^{e^x}]$ is:

1. $\sin[x^{e^x}]e^x \left[\frac{1}{x} + \ln(x)\right]$
2. $\cos[x^{e^x}]e^x \left[\frac{1}{x} + \ln(x)\right]$
3. $\cos[x^{e^x}]x^{e^x}e^x \left[\frac{1}{x} + \ln(x)\right]$
4. $\sin[x^{e^x}]x^{e^x}e^x \left[\frac{1}{x} + \ln(x)\right]$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11701]

2[Option ID=11702]

3[Option ID=11703]

4[Option ID=11704]

Sl. No.27

QBID:1022027

If $X \sim b(n, p)$, the distribution of $Y = (n - x)$ is :

1. $b(n, 1)$
2. $b(n, x)$
3. $b(n, p)$
4. $b(n, q)$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11705]

2[Option ID=11706]

3[Option ID=11707]

4[Option ID=11708]

Sl. No.28

QBID:1022028

The value of $\frac{d^n f}{dx^n}$, where, $f = \ln(ax)$ is:

1. $a \frac{(n-1)!}{x^n}$
2. $a (-1)^n \frac{n!}{x^n}$
3. $(-1)^{n-1} \frac{(n-1)!}{x^n}$
4. $(a)^n \frac{(n-1)!}{x^n}$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11709]

2[Option ID=11710]
 3[Option ID=11711]
 4[Option ID=11712]

Sl. No.29

QBID:1022029

If $f = \tan^{-1}\left[\frac{\sin x}{\cos x - 1}\right]$, Then $\frac{df}{dx}$ is:

1. 1
2. $\frac{1}{2}$
3. $\frac{1}{3}$
4. $\frac{1}{4}$

- (1) 1
 (2) 2
 (3) 3
 (4) 4

1[Option ID=11713]
 2[Option ID=11714]
 3[Option ID=11715]
 4[Option ID=11716]

Sl. No.30

QBID:1022030

Consider $f(x, y) = \ln\left[\frac{x^2 + y^2}{x + y}\right]$, then

$xf_x + yf_y$ is equal to:

1. 0
2. 1
3. 2
4. 3

- (1) 1
 (2) 2
 (3) 3
 (4) 4

1[Option ID=11717]
 2[Option ID=11718]
 3[Option ID=11719]
 4[Option ID=11720]

Sl. No.31

QBID:1022031

Consider $I = \int_D \int x^3 y \, dx dy$, where D is the region bounded by the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ in the first quadrant. Then the value of I is,

1. $a^2 b^2$

2. $\frac{a^4 b^2}{24}$

3. $a^4 b^2$

4. $\frac{a^4 b^2}{12}$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11721]

2[Option ID=11722]

3[Option ID=11723]

4[Option ID=11724]

Sl. No.32

QBID:1022032

The value of the $\oint_C \frac{dz}{z-2}$ around a circle $|z-2| = 4$ is :

1. 0

2. πi

3. $2\pi i$

4. $4\pi i$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11725]

2[Option ID=11726]

3[Option ID=11727]

4[Option ID=11728]

Sl. No.33

QBID:1022033

The order of the function $\frac{(z^2 - \pi^2) \sin(z)}{z^7}$ is:

1. Simple pole of order one

2. $z = \pm\pi$ are the third order zero, $z = i\pi, i = 0, \pm 2, \pm 3, \dots$ are first order zero

3. $z = i\pi, i = 0, \pm 2, \pm 3, \dots$ are third order zero, $z = \pm\pi$ are the first order zero

4. $z = i\pi, i = 0, \pm 1, \pm 2, \pm 3, \dots$ are all first order zero

(1) 1

(2) 2

(3) 3

(4) 4

- 1[Option ID=11729]
 2[Option ID=11730]
 3[Option ID=11731]
 4[Option ID=11732]

Sl. No.34
QBID:1022034

For the function $f(z) = \frac{\sin(z)}{z^2}$, the residues at the poles are,

1. 0
2. 1
3. 2
4. 3

- (1) 1
 (2) 2
 (3) 3
 (4) 4

- 1[Option ID=11733]
 2[Option ID=11734]
 3[Option ID=11735]
 4[Option ID=11736]

Sl. No.35
QBID:1022035

The probability of Mr. R living 20 years more is $\frac{1}{5}$ and that of Mr. S is $\frac{1}{7}$. The probability that at least one of them will survive 20 years hence is :

1. $\frac{12}{35}$
2. $\frac{1}{35}$
3. $\frac{13}{35}$
4. $\frac{11}{35}$

- (1) 1
 (2) 2
 (3) 3
 (4) 4

- 1[Option ID=11737]
 2[Option ID=11738]
 3[Option ID=11739]
 4[Option ID=11740]

Sl. No.36
QBID:1022036

If $P = \begin{bmatrix} 1 & 1 \\ -2 & 1 \end{bmatrix}$ diagonalizes a matrix $A = \begin{bmatrix} 4 & 1 \\ 2 & 3 \end{bmatrix}$. Then, the diagonal matrix is:

1. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

2. $\begin{bmatrix} 4 & 0 \\ 0 & 3 \end{bmatrix}$

3. $\begin{bmatrix} 2 & 0 \\ 0 & 5 \end{bmatrix}$

4. $\begin{bmatrix} 1 & 0 \\ 0 & 3 \end{bmatrix}$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11741]

2[Option ID=11742]

3[Option ID=11743]

4[Option ID=11744]

Sl. No.37

QBID:1022037

If a matrix A is skew - Hermitian and unitary, then (T indicates transpose & $\bar{}$ is complex conjugate):

1. $\bar{A}_{ij} = A_{ij} ; \bar{A}^T = A^{-1}$

2. $\bar{A}_{ij} = -A_{ji} ; \bar{A}^T = A^{-1}$

3. $\bar{A}_{ij} = -A_{ij} ; \bar{A}^T = -A^{-1}$

4. $\bar{A}_{ij} = A_{ji} ; \bar{A}^T = -A^{-1}$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11745]

2[Option ID=11746]

3[Option ID=11747]

4[Option ID=11748]

Sl. No.38

QBID:1022038

The mean of the squares of first eleven natural numbers is:

1. 46
2. 23
3. 48
4. 42

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=11749]

2[Option ID=11750]

3[Option ID=11751]

4[Option ID=11752]

Sl. No.39

QBID:1022039

The approximate value of the real and the positive root of the equation $2x - \log_{10}x - 7 = 0$ using Newton –Raphson method is:

1. 3.789
2. 1.573
3. 10.862
4. 11.763

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=11753]

2[Option ID=11754]

3[Option ID=11755]

4[Option ID=11756]

Sl. No.40

QBID:1022040

The value of $I = \int_4^{5.2} \log x \, dx$ using Simpson's $\frac{1}{3}$ rule is :

1. 1.828
2. 5.828
3. 9.828
4. 13.828

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=11757]

2[Option ID=11758]

3[Option ID=11759]

4[Option ID=11760]

Sl. No.41

QBID:1022041

A function $f(x)$ has a continuous n^{th} derivative, then error for any polynomial interpolation method is given by,

1. $E_n = (x - x_0)(x - x_1) \dots (x - x_{n-1}) \frac{f^n}{n!}$
2. $E_n = \frac{f^{n-1}}{(n-1)!} - \frac{f^n}{n!}$
3. $E_n = x_n - x_{n-1}$
4. $E_n = x - \frac{f^n}{n!}$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11761]

2[Option ID=11762]

3[Option ID=11763]

4[Option ID=11764]

Sl. No.42

QBID:1022042

Which method will give more accurate value of initial value problem:

$$\frac{dy}{dx} = f(x, y), y(x_0) = y_0$$

1. Euler method
2. Runge-Kutta 4 method
3. Runge-Kutta 8 method
4. Runge-Kutta 16 method

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11765]

2[Option ID=11766]

3[Option ID=11767]

4[Option ID=11768]

Sl. No.43

QBID:1022043

If 'a' is the actual value and 'e' is the estimated value, the formula for relative error is:

1. a/e
2. $(a - e) / e$
3. $|a - e| / e$
4. $(a - e) / a$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11769]

2[Option ID=11770]

3[Option ID=11771]

4[Option ID=11772]

Sl. No.44

QBID:1022044

A semi-logarithmic graph or ratio chart is obtained by plotting the points:

1. $\{x, y\}$
2. $\{\log x, \log y\}$
3. $\{x, \log y\}$
4. $\{x, \log y/x\}$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11773]

2[Option ID=11774]

3[Option ID=11775]

4[Option ID=11776]

Sl. No.45

QBID:1022045

For the mid values given below:

25, 34, 43, 53, 61, 70

The first class of the distribution is :

1. 24.5 – 34.5
2. 25 – 34
3. 20 – 30
4. 20.5 – 29.5

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11777]

2[Option ID=11778]

3[Option ID=11779]

4[Option ID=11780]

Sl. No.46

QBID:1022046

If X is independent of Y and X is independent of Z and Z is independent of YZ, then,

1. Z is independent of XY
2. Z is dependent on XY
3. Z is same as XY
4. Z is $(XY)^c$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11781]

2[Option ID=11782]

3[Option ID=11783]

4[Option ID=11784]

Sl. No.47

QBID:1022047

The expected value of the sum obtained when 'n' fair dice are rolled is:

1. n
2. $1.5n$
3. $2.5n$
4. $3.5n$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11785]

2[Option ID=11786]

3[Option ID=11787]

4[Option ID=11788]

Sl. No.48

QBID:1022048

Suppose that N people throw their hats into the center of a room. The hats are mixed up, and each person randomly selects one. The expected number of people who select their own hat is,

1. 1
2. N
3. $N-1$
4. 0

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11789]

2[Option ID=11790]

3[Option ID=11791]

4[Option ID=11792]

Sl. No.49

QBID:1022049

The density function of x is given by,

$$f(x, y) = \begin{cases} 1, & \text{if } 0 \leq x \leq 1 \\ 0, & \text{otherwise.} \end{cases}$$

The expectation value $E[e^x]$ is,

1. 1
2. e
3. 1-e
4. 1+e

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11793]

2[Option ID=11794]

3[Option ID=11795]

4[Option ID=11796]

Sl. No.50

QBID:1022050

The intersection $S \cap T$ of two subgroups S and T of a group G is

1. A subgroup of G .
2. Not a subgroup of G .
3. A Ring.
4. An Abelian group.

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=11797]

2[Option ID=11798]

3[Option ID=11799]

4[Option ID=11800]