STUDENT'S ENROLMENT NUMBER_____

**ITM (SLS) BARODA UNIVERSITY**

**SCHOOL OF COMPUTER SCIENCE, ENGINEERING AND TECHNOLOGY (SOCET)**

**B. TECH CSE/CSE-IT ODD SEMESTER 2023-24**

**CONTINUOUS EVALUATION TEST - 2**

**SEMESTER: 07** **COURSE-CODE: C2710D4** **COURSE-NAME: PSMCS**

**DATE: 27/09/2023** **MARKS: 30** **TIME: 10:30 AM - 12:00 PM**

**Instructions:** Use of a Non-Programmable Calculator is allowed.

[06]

**Q1. Do as directed:** **(6)**

(1.) What does probability mean?
(a) The total number of possible outcomes in an event
(b) The ratio of favourable outcomes to all outcomes
(c) The chance of an event happening (d) How certain an event will occur

(2.) The standard deviation of the Binomial distribution is given by
(a) npq (b) $(npq)^2$ (c) $(npq)^{1/2}$ (d) 1

(3.) A variable that can assume any value between two given points is called
(a) Continuous random variable (b) Discrete random variable
(c) Irregular random variable (d) Uncertain random variable

(4.) Out of the following values, which one is not possible in probability?
a) $P(x) = 1$ b) $\sum x\,P(x) = 3$ c) $P(x) = 0.5$ d) $P(x) = -0.5$

(5.) For two variables, X and Y, the maximum number of regression lines can be
(a) Three (b)Two (c) Four (d) One

(6.) The rank correlation coefficient is always
(a) + 1 (b) - 1 (c) 0 (d) Between + 1 and - 1

**Q2. Attempt Any Two:** **(6)**

**(a.)** Define probability with different approaches to probability.

**(b.)** An office has 12 clerks. The long-serving clerks feel that they should have a seniority increment based on length of service built into their salary structure. An assessment of their efficiency by their departmental manager and the personnel department produces a ranking of efficiency. This is shown below together with a ranking of their length of service.
Do the data support the clerks' claim for seniority increment 0.378

| Length of service | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Efficiency | 2 | 3 | 5 | 1 | 9 | 10 | 11 | 12 | 8 | 7 | 6 | 4 |

**(c.)** In a glass manufacturing process, it is known that on average 1 in every 1000 of the items produced has one or more bubbles. What is the probability that a random sample of 5000 will yield less than two times possessing bubbles? 0.04042

**(d.)** A card is drawn from a well-shuffled pack of playing cards. Find the probability that the card drawn is (a) either a heart or an honour or king (b) either an ace or a king or a queen.

**Q3. Attempt Any Two:** **(6)**

**(a.)** For an experiment of throwing a die twice, find the probability:
(i.) of the event of getting a total of 9, given that the die has shown up points between 4 and 6 (both inclusive) (ii.) of the event of getting points between 4 and 6 (both inclusive), given that a total of 9 has already been obtained

**(b.)** The owner of a small garment shop is hopeful that his sales are rising significantly week by week. Treating the sales for the previous six weeks as a typical example of this rising trend, he recorded them in Rs 1000's and analyzed the results

| Week | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Sales | 2.69 | 2.62 | 2.80 | 2.70 | 2.75 | 2.81 |

Fit a linear regression equation to suggest to him the weekly rate at which his sales are rising and use this equation to estimate expected sales for the 7th week.

(c.) A B. Tech graduate applies for a job in two firms X and Y. The probability of his being selected in firm X is 0.7 and being rejected at Y is 0.5. The probability of at least one of his applications being rejected is 0.6. What is the probability that he will be selected by one of the firms?

(d.) A factory has three units A, B, and C. Unit A produces 50% of its products, and units B and C each produce 25% of the products. The percentage of defective items produced by A, B, and C units are 3%, 2%, and 1%, respectively. If an item is selected at random from the total production of the factory is found defective, what is the probability that it is produced by:
(a) Unit A (b) Unit B (c) Unit C

**Q4. Attempt Any Two:** **(6)**

(a.) Define continuous random variables with examples and write characteristics of Normal distribution.

(b.) Assuming the probability of male birth as ½, find the probability distribution of a number of boys out of 5 births. (a) Find the probability that a family of 5 children has (i) at least one boy (ii) at most 3 boys (b) Out of 960 families with 5 children each find the expected number of families with (i) and (ii) above

(c.) Two random variables have the regression equations: $3x + 2y - 26 = 0$ and $6x + y - 31 = 0$ (a) Find the mean values of x and y and the coefficient of correlation between x and y. (b) If the variance of x is 25, then find the standard deviation of y from the data

(d.) Ten entries are submitted for a competition. Three judges study each entry and list the ten in rank order. Their rankings are as follows:

| Entry | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| Judge-1 | 9 | 3 | 7 | 5 | 1 | 6 | 2 | 4 | 10 | 8 |
| Judge-2 | 9 | 1 | 10 | 4 | 3 | 8 | 5 | 2 | 7 | 6 |
| Judge-3 | 6 | 3 | 8 | 7 | 2 | 4 | 1 | 5 | 9 | 10 |

Calculate the appropriate rank correlation to help you answer the following questions:
(i) Which pair of judges agrees the most? (ii) Which pair of judges disagree the most?

**Q5. Attempt Any Two:** **(6)**

(a.) Define Discrete random variable with examples. Write characteristics of Binomial distribution.

(b.) 52% of the students at a certain college are females. 5% of the students in this college are majoring in computer science. 2% of the students are women majoring in computer science. If a student is selected at random, find the conditional probability that (a) this student is female, given that the student is majoring in computer science; (b) this student is majoring in computer science, given that the student is female.

(c.) The probability that an infection is cured by a particular antibiotic drug within five days is 0.75. Suppose four patients are treated by this antibiotic drug, what is the probability that: (a) No patient is cured (b) Exactly two patients are cured (c) At least two patients are cured

(d.) The time it takes an international telephone operator to place an overseas phone call is normally distributed with a mean of 45 seconds and a standard deviation of 10 seconds. (a) What is the probability that my call will go through in less than 1 minute? (b) What is the probability that my call will get through in less than 40 seconds? (c) What is the probability that I will have to wait more than 70 seconds for my call to go through?

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B.TECH CSE/CSE-IT/CSE-CSN/CSE-AI/DA EVEN SEMESTER 2023-24

CONTINUOUS EVALUATION TEST (CET)-2

**SEMESTER: VII** **COURSE-CODE: C2710D5** **COURSE-NAME: Cloud Computing & Application**

**DATE: 03/10/2023** **MARKS: 30** **TIME: 10:30am to 12pm**

Instructions:

- All questions are mandatory. There are no external options.
- Make suitable assumptions, wherever necessary, and state them clearly.
- Use of Non-Programmable Calculator is allowed/Not allowed.
- Figures to the right indicate maximum marks.

**Q1. <Six MCQs of 1 mark each>** [6]

1. Which cloud deployment model provides the greatest level of control and customization?
   a) Public cloud b) Private cloud
   b) Both d) None of these
2. Which cloud computing model is often used to deliver Analytics as a Service?
   a) Infrastructure as a Service (IaaS) b) Software as a Service (SaaS)
   c) Platform as a Service (PaaS) d) None of the above
3. Which StaaS feature helps protect data against hardware failures by creating duplicate copies?
   a) Data encryption b) Data deduplication
   c) Data replication d) Data compression
4. What does SLA stand for in the context of StaaS?
   a) Service Level Agreement b) Storage Load Assessment
   c) Security Layer Authorization d) System Logging and Auditing
5. Which of the following is an example of a public cloud provider?
   a) VMware b) Amazon Web Services (AWS)
   c) Cisco d) Dell EMC
6. Which of the following is not a cloud storage?
   a) Hard disk b) Xdrive c) MediaMax d) Strongspace

**Q2. Answer any Two (out of Four)** [6]

a) What is resource pooling? How does resource pooling works?

b) Explain workload distribution architecture

c) What is cloud usage monitor? List down its benefits.

d) What is Data analytics? Explain analytics as a service.

**Q3. Answer any Two (out of Four)** [6]

a) Difference Between resource pooling & shared resources

b) Differentiate between Public & Private Cloud

c) Explain the types of StaaS

d) Explain private cloud architecture

**Q4. Answer any Two (out of Four)** [6]

a) What are the challenges in cloud security

b) Explain the types of HaaS.

c) Which are the factors that are to be considered while estimating power consumptions

d) What are the benefits of analytics as a service?

**Q5. Answer any Two (out of Four)** [6]

a) What is the impact of shared resources and multi tenancy on cloud application?

b) How is internal private cloud different from on-premise data centre.

c) List some Advantages of Map reduces

d) What is cloud management? Why cloud management is important?

-x-x-x-x-x-x-x-

CE T.2

Q1, Q9, Q35, Q38, Q39