

MCQS

STA301 midterm preparation file

ZB

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the name of God , Most  
Gracious, Most merciful



STA301

**MCQS**

**1. What is mass communication?**

- a) Communication between two people
- b) Communication from one source to many receivers
- c) Communication between small groups
- d) Communication via non-verbal channels

**Answer: b)**

**2. Which of the following is an example of mass media?**

- a) Face-to-face communication
- b) Telephone call
- c) Television broadcast
- d) Written letter

**Answer: c)**

**3. What is the main characteristic of mass communication?**

- a) One-to-one communication
- b) Personal and intimate
- c) One-to-many communication
- d) Two-way communication

**Answer: c)**

**4. Which of these is a role of mass communication in society?**

- a) Providing entertainment
- b) Educating the public
- c) Shaping public opinion
- d) All of the above

**Answer: d)**1. What is the mean of the dataset 3, 7, 5, 8, 10?

6. If two events are mutually exclusive, what is the probability of both events occurring?

- a) 1
  - b) 0
  - c) 0.5
  - d) Cannot be determined
- Answer: b) 0

7. What is the probability of rolling a 3 on a fair six-sided die?

- a) 1/6
  - b) 1/2
  - c) 1/3
  - d) 1/12
- Answer: a) 1/6

8. If  $P(A) = 0.4$  and  $P(B) = 0.5$ , what is  $P(A \cap B)$  for independent events A and B?

- a) 0.2
  - b) 0.1
  - c) 0.9
  - d) 0.25
- Answer: a) 0.2

9. Which of the following is NOT a property of a probability distribution?

- a) The sum of the probabilities must be 1.
  - b) All probabilities must be between 0 and 1.
  - c) The probabilities can be greater than 1.
  - d) Probabilities are non-negative.
- Answer: c) The probabilities can be greater than 1.

10. If two events A and B are independent, then:

- a)  $P(A \cap B) = P(A) + P(B)$
  - b)  $P(A \cap B) = P(A) * P(B)$
  - c)  $P(A \cap B) = 0$
  - d)  $P(A \cap B) = P(A) - P(B)$
- Answer: b)  $P(A \cap B) = P(A) * P(B)$

11. The binomial distribution is used when:

- a) There are two possible outcomes in each trial.
  - b) The trials are not independent.
  - c) The outcomes are continuous.
  - d) The number of trials is not fixed.
- Answer: a) There are two possible outcomes in each trial.

12. Which of the following distributions is continuous?

- a) Binomial
  - b) Poisson
  - c) Normal
  - d) Geometric
- Answer: c) Normal

13. The expected value of a random variable  $X$  with a normal distribution is:

- a) The mean of the distribution
  - b) The mode of the distribution
  - c) The median of the distribution
  - d) The range of the distribution
- Answer: a) The mean of the distribution

14. The area under the curve of a normal distribution between  $-\infty$  and  $+\infty$  is:

- a) 0
  - b) 0.5
  - c) 1
  - d) 2
- Answer: c) 1

15. Which of the following is true for a standard normal distribution?

- a) Mean = 0, Standard deviation = 1
  - b) Mean = 1, Standard deviation = 0
  - c) Mean = 1, Standard deviation = 1
  - d) Mean = 0, Standard deviation = 0
- Answer: a) Mean = 0, Standard deviation = 1

**16. What is the primary purpose of random sampling?**

- a) To ensure the sample size is large enough
- b) To reduce bias and make the sample representative of the population
- c) To make the data collection process faster
- d) To eliminate all errors in the sample

**Answer: b) To reduce bias and make the sample representative of the population**

**17. Which of the following is an example of a parameter?**

- a) Sample mean
- b) Sample variance
- c) Population mean
- d) Sample size

**Answer: c) Population mean**

**18. A 95% confidence interval for a population mean means that:**

- a) There is a 95% chance that the true population mean falls within the interval.
- b) The sample mean will be within 95% of the population mean.
- c) 95% of the sample means will fall within the interval.
- d) The population mean is equal to 95% of the sample mean.

**Answer: a) There is a 95% chance that the true population mean falls within the interval.**

**19. Which of the following is true about the Central Limit Theorem?**

- a) The distribution of sample means approaches a normal distribution as the sample size increases, regardless of the population distribution.**
- b) The distribution of sample means always follows a normal distribution.**
- c) The distribution of sample means is always the same as the population distribution.**
- d) The Central Limit Theorem applies only to small sample sizes.**

**Answer: a) The distribution of sample means approaches a normal distribution as the sample size increases, regardless of the population distribution.**

**20. What is the margin of error in a confidence interval?**

- a) The difference between the sample statistic and the population parameter**
- b) The maximum possible error in estimating a population parameter**
- c) The average of the sample values**
- d) The difference between the largest and smallest sample values**

**Answer: b) The maximum possible error in estimating a population parameter**

21. The null hypothesis ( $H_0$ ) is:

- a) Always true
- b) A statement of no effect or no difference
- c) Always rejected
- d) A statement of an effect or difference

Answer: b) A statement of no effect or no difference

22. What is the alternative hypothesis ( $H_1$ )?

- a) It suggests that the null hypothesis is true
- b) It suggests that the null hypothesis is false
- c) It always supports the null hypothesis
- d) It is never tested

Answer: b) It suggests that the null hypothesis is false

23. Which of the following is the p-value used for in hypothesis testing?

- a) To measure the effect size
- b) To determine the probability of observing the data assuming the null hypothesis is true
- c) To calculate the sample size
- d) To calculate the confidence interval

Answer: b) To determine the probability of observing the data assuming the null hypothesis is true

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**24. If the p-value is less than the significance level ( $\alpha$ ), what decision should be made?**

- a) Fail to reject the null hypothesis**
  - b) Accept the null hypothesis**
  - c) Reject the null hypothesis**
  - d) Accept the alternative hypothesis**
- Answer: c) Reject the null hypothesis**

**25. In a one-tailed hypothesis test, if the test statistic falls in the critical region, you:**

- a) Fail to reject the null hypothesis**
  - b) Reject the null hypothesis**
  - c) Cannot draw any conclusion**
  - d) Accept the alternative hypothesis**
- Answer: b) Reject the null hypothesis**

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26. In simple linear regression, what is the purpose of the least squares method?

- a) To find the regression line that minimizes the total distance between the data points and the line
- b) To maximize the correlation between the variables
- c) To minimize the error between observed and predicted values
- d) To maximize the variance of the residuals

Answer: c) To minimize the error between observed and predicted values

27. What does the slope of the regression line represent?

- a) The change in the dependent variable for a one-unit increase in the independent variable
- b) The correlation between the two variables
- c) The intercept of the regression line
- d) The error in the regression model

Answer: a) The change in the dependent variable for a one-unit increase in the independent variable

28. What is the coefficient of determination ( $R^2$ )?

- a) The proportion of the variance in the dependent variable that is explained by the independent variable
- b) The slope of the regression line
- c) The average error of the model
- d) The significance level of the test

Answer: a) The proportion of the variance in the dependent variable that is explained by the independent variable

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29. Which of the following is true about multicollinearity in multiple regression?

- a) It occurs when the independent variables are highly correlated with each other
- b) It improves the accuracy of the model
- c) It increases the variance of the regression coefficients
- d) It does not affect the regression model

Answer: a) It occurs when the independent variables are highly correlated with each other

30. In multiple regression, what is the primary goal?

- a) To predict the value of the dependent variable based on multiple independent variables
- b) To measure the relationship between two variables
- c) To find the average value of the dependent variable
- d) To calculate the correlation coefficient between two variables

Answer: a) To predict the value of the dependent variable based on multiple independent variables

### 7. Correlation and Causation

31. A correlation coefficient of  $-0.85$  indicates that:

- a) There is a strong positive linear relationship between the two variables
- b) There is a weak negative linear relationship between the two variables
- c) There is a strong negative linear relationship between the two variables
- d) There is no linear relationship between the two variables

Answer: c) There is a strong negative linear relationship between the two variables

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32. Which of the following is true about correlation and causation?

- a) Correlation implies causation
- b) Causation implies correlation
- c) Correlation and causation are the same thing
- d) Correlation and causation are unrelated

Answer: b) Causation implies correlation

33. The coefficient of correlation ( $r$ ) can range from:

- a) -1 to +1
- b) 0 to +1
- c)  $-\infty$  to  $+\infty$
- d) 0 to 100

Answer: a) -1 to +1

34. If the correlation coefficient between two variables is 0.90, this indicates:

- a) A strong positive linear relationship
- b) A weak negative linear relationship
- c) A moderate relationship with no trend
- d) No relationship

Answer: a) A strong positive linear relationship

35. What does the regression line minimize in least squares regression?

- a) The total sum of the residuals
- b) The sum of squared residuals
- c) The variance of the dependent variable
- d) The total number of data points

Answer: b) The sum of squared residuals

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36. In ANOVA, the null hypothesis typically states that:

- a) The group means are equal
- b) The variances are equal across groups
- c) The sample sizes are equal
- d) The groups have no relationship

Answer: a) The group means are equal

37. What is the purpose of the F-statistic in ANOVA?

- a) To compare the means of multiple groups
- b) To compare the standard deviations of multiple groups
- c) To calculate the correlation between the groups
- d) To calculate the slope of the regression line

Answer: a) To compare the means of multiple groups

38. If the p-value in ANOVA is smaller than the significance level ( $\alpha$ ), we:

- a) Fail to reject the null hypothesis
- b) Reject the null hypothesis
- c) Accept the null hypothesis
- d) Increase the sample size

Answer: b) Reject the null hypothesis

. The mode of the dataset 1, 2, 2, 3, 3, 3, 4, 5 is:

- a) 3
- b) 2
- c) 1
- d) 4

Answer: a) 3

5. What does the range of a dataset represent?

- a) The difference between the largest and smallest values
- b) The average of all values
- c) The middle value

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WhatsApp:

<https://whatsapp.com/channel/0029VaODheTDp2Q8YVco0N2p>

Second WhatsApp channel  
channel on WhatsApp:

<https://whatsapp.com/channel/0029VafvOcy90x2tPbUaX02l>

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**Passing criteria of this course**

Letter Grade	Grade Points	Equivalent Percentage
A+	4.00	90-100
A	4.00	85-89
A-	3.66 - 3.99	80-84
B+	3.33 - 3.65	75-79
B	3.00 - 3.32	71-74
B-	2.66 - 2.99	68-70
C	2.00 - 2.65	61-67
D	1.00 - 1.99	50-60
F	0.00	00-49

**Passing Criteria for a Course:**

The passing criteria is defined in such a way that it ensures the student shall be consistent in his studies throughout the semester.

Therefore, for passing a course/subject, student shall fulfill the following:

- a) Secure minimum **20%** score in Formative Assessments/Mid terms
- b) Secure minimum **20%** score in Final Term Examinations.
- c) Secure at least **40%** marks in aggregate while fulfilling the above requirements

**Course Selection and Credit Hours**

**Q: How do I select courses when the course selection is open?**

**A: Follow these steps:**

- 1. Check the credit hours allowed by your university (e.g., 21, 18, or 15 credit hours).**
- 2. Each subject typically has 3 credit hours.**
- 3. Divide the total allowed credit hours by 3 to determine how many subjects you can select.**

**Examples:**

**21 credit hours = 7 subjects**

**15 credit hours = 5 subjects**

**Remember, the university may allow different credit hours for each student, so check your specific allowance.**

**By following these steps, you can make informed decisions during course selection and manage your credit hours effectively.**

**ZB**

**Advice**

**Hmaesha relax ho ke parha kryn panic mat hua kryn apky parents ky bohat khawab hoty hn wo pura krny ki puri koshish kea kryn kbi b ksi pe depend na kea kryn apko bs ak insan success kr saqta ha or wo insan ap khud hn apky elawa koi nahe ap bs koshish kryn Allah pak pe strong yakeen rakha kryn or mehnat krke sb Allah ke hawaly kr dea kryn everything is possible be brave be strong stay blessed**

**Hum insan hamesha moat se darty or bhagty hn or moat se bachny ki koshish krty hn jabke moat ny ana hi ana ha hum**

moat se nahe bach saqty humy jahanam se bachny ki koshish  
krni chaheay hum jahanam se bach saqty hn  
Insan ko 3 chezo se dar lagta ha Moat Risk/Dolat Ezat Shohrat  
Fame

## Moat

**Humy pta hona chaheay Moat tab ani ha jab Allah  
chahy us se pehly puri dunya bi ak taraf ho ke apko  
marna chahy to apka kuch nahe beggar saqti**

## Risk/Dolat

**Risk Dolat sb Allah pak ke hath m ha puri dunya ak  
taraf b ho jay na apsy apka risk cheen saqti ha na de  
saqti ha Ye sirf ALLAH pak ky hath m ha**

## Izat Zilat shohrat Fame

**Izat Zilat Sirf Allah de saqty hn puri dunya mel ke b  
apko zra brabr b damage nahe kr saqti Agr ALLAH**

**Apko izat dena chahay to puri dunya ak taraf ho ke  
b apko 1% b nuksan nahe pohancha saqti**

**Phr Dar ks bat ka ??????????????????**

**Be brave be strong Just put your trust To ALLAH  
Hamesha Confident or himat se raho kbi ksi k samne  
mat jhuko puri dunya mel k b apka kuch b nahe  
beggar saqti**

**ZB**  
**MY REQUEST FROM ALL OF YOU**

**ZB Request from All of you My family**

Mjy ap sbki help or support ki zarort ha or wo ye k hum sb Mel kr Allah ka Quran ki Urdu translation logo tak pohanchy or Quran ko samjna asaaan kryn dosro k leay sb tak Allah ka Quran pohanchy it's my campaign hum log 70+ age k ho jaty hn phr b hmy namaz tak ki translation nahe pta hoti k hum Allah pak se

Kya Dua kr rhy hn so hum youngster's ko Mel kr puri takat or energy ke sath Allah ka Quran spread krna ha

Hum puri Koshish kr rhy hn k hum sb Mel k Quran ki translation or most important topics ko maximum share kry with translation hmara maksad Quran ko spread krna ha be a part of us

m apni pocket se ye sb kr rha ho Allah ka Quran spread krny k leay apne or mene sbny Marna ha ak din to q na Allah k leay Kuch kryn apni energies apni power ko bajay negative use krny k Allah k leay invest kryn khud ko be a part of us

Agr m 23 ki age m apny sare sources use kr rha ho pocket se heavy amounts give away kr rha ho Quran spread krny k leay to ap just share to kr saqty hn itna e kr dyn

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**Agr ap mujsy contact na kr sky too b ap jo b hn jaha bi hn waha Allah ka quran pheelay zada se zada with urdu translation jitni himat ha utna share kryn**

..... **MY Family** .....

**Just Relax and focus! Exams are not difficult. Put in your 100% effort and trust in Allah.**

..... **AL-Quran** .....

**"And indeed, with hardship comes ease." (Quran 94:5)  
Remember, I'm here to support you! Stay brave and strong!"**

**May Allah bless you**