**1. Which of the following is the first step in the research process?**

a) Data collection  
b) Problem identification  
c) Hypothesis formulation  
d) Literature review  
**Answer:** b) Problem identification

**2. A hypothesis is:**

a) A statement of fact  
b) A testable prediction about the relationship between variables  
c) A conclusion drawn from data  
d) A method of data analysis  
**Answer:** b) A testable prediction about the relationship between variables

**3. In qualitative research, the primary aim is to:**

a) Establish causation  
b) Explore and understand phenomena  
c) Measure variables  
d) Test hypotheses  
**Answer:** b) Explore and understand phenomena

**4. Which of the following sampling techniques ensures every member of the population has an equal chance of selection?**

a) Systematic sampling  
b) Convenience sampling  
c) Random sampling  
d) Quota sampling  
**Answer:** c) Random sampling

**5. The term “empirical research” refers to research that is based on:**

a) Theoretical models  
b) Observations and experiments  
c) Previous literature  
d) Personal opinions  
**Answer:** b) Observations and experiments

**6. The dependent variable in a study is:**

a) Manipulated by the researcher  
b) Measured as an outcome of the study  
c) Held constant throughout the experiment  
d) Always a categorical variable  
**Answer:** b) Measured as an outcome of the study

**7. What is the main purpose of a literature review in research?**

a) To publish previous research  
b) To identify gaps in existing knowledge  
c) To test a hypothesis  
d) To design an experiment  
**Answer:** b) To identify gaps in existing knowledge

**8. When a researcher uses numerical data to make inferences about a population, they are conducting:**

a) Quantitative research  
b) Qualitative research  
c) Mixed-methods research  
d) Action research  
**Answer:** a) Quantitative research

**9. Which of the following scales is the most appropriate for measuring attitudes or opinions?**

a) Nominal scale  
b) Ordinal scale  
c) Interval scale  
d) Likert scale  
**Answer:** d) Likert scale

**10. The process of verifying the reliability and validity of research instruments is called:**

a) Standardization  
b) Testing  
c) Validation  
d) Calibration  
**Answer:** c) Validation

**11. A longitudinal study is characterized by:**

a) Studying different groups at the same time  
b) Collecting data at a single point in time  
c) Observing the same group over a long period  
d) Conducting experimental research  
**Answer:** c) Observing the same group over a long period

**12. The primary aim of applied research is to:**

a) Develop new theories  
b) Solve practical problems  
c) Test hypotheses  
d) Review existing literature  
**Answer:** b) Solve practical problems

**13. The term “triangulation” in research refers to:**

a) Using three data points to analyze results  
b) Combining multiple research methods to study a phenomenon  
c) Conducting three replicates of an experiment  
d) Testing three hypotheses in a single study  
**Answer:** b) Combining multiple research methods to study a phenomenon

**14. Which of the following methods is most commonly used in exploratory research?**

a) Surveys  
b) Experiments  
c) Case studies  
d) Observational studies  
**Answer:** c) Case studies

**15. Ethical considerations in research include all of the following EXCEPT:**

a) Informed consent  
b) Plagiarism  
c) Confidentiality  
d) Accurate reporting  
**Answer:** b) Plagiarism

**16. The term “null hypothesis” refers to the hypothesis that:**

a) There is a significant effect or relationship  
b) There is no significant effect or relationship  
c) The independent variable influences the dependent variable  
d) The research findings are accurate  
**Answer:** b) There is no significant effect or relationship

**17. A control group in an experiment is:**

a) Subjected to the experimental treatment  
b) Used to eliminate alternative explanations  
c) Excluded from the analysis  
d) A secondary group of researchers  
**Answer:** b) Used to eliminate alternative explanations

**18. A variable that mediates the relationship between the independent and dependent variables is called a:**

a) Moderator variable  
b) Confounding variable  
c) Mediator variable  
d) Extraneous variable  
**Answer:** c) Mediator variable

**19. A “pilot study” is conducted to:**

a) Solve a major problem  
b) Test the feasibility of the main study  
c) Compare two experimental groups  
d) Validate data collection tools  
**Answer:** b) Test the feasibility of the main study

**20. “Data saturation” in qualitative research means:**

a) Collecting data until no new themes or insights emerge  
b) Collecting data from the entire population  
c) Using multiple data collection methods  
d) Achieving the highest possible response rate  
**Answer:** a) Collecting data until no new themes or insights emerge

**21. The independent variable in research is:**

a) Controlled by the researcher  
b) The outcome measured in the study  
c) Dependent on other variables  
d) Always numerical  
**Answer:** a) Controlled by the researcher

**22. Which of the following is NOT a probability sampling method?**

a) Stratified sampling  
b) Systematic sampling  
c) Snowball sampling  
d) Cluster sampling  
**Answer:** c) Snowball sampling

**23. A case study is an example of:**

a) Descriptive research  
b) Experimental research  
c) Quantitative research  
d) Longitudinal research  
**Answer:** a) Descriptive research

**24. The term “construct validity” refers to:**

a) The extent to which a test measures what it claims to measure  
b) The accuracy of the measurement  
c) The generalizability of the findings  
d) The consistency of the results  
**Answer:** a) The extent to which a test measures what it claims to measure

**25. Which of the following is the best measure of central tendency when the data has outliers?**

a) Mean  
b) Median  
c) Mode  
d) Range  
**Answer:** b) Median

**26. Which of the following tools is commonly used in qualitative research?**

a) Questionnaire  
b) Interview guide  
c) Experiment  
d) Survey form  
**Answer:** b) Interview guide

**27. Research aimed at finding a solution for an immediate problem is called:**

a) Fundamental research  
b) Pure research  
c) Basic research  
d) Action research  
**Answer:** d) Action research

**28. The type of sampling where researchers select participants based on ease of access is called:**

a) Convenience sampling  
b) Stratified sampling  
c) Purposive sampling  
d) Systematic sampling  
**Answer:** a) Convenience sampling

**29. When research findings can be applied to settings beyond the study, it is said to have:**

a) Internal validity  
b) External validity  
c) Construct validity  
d) Predictive validity  
**Answer:** b) External validity

**30. The graphical representation of a frequency distribution is called a:**

a) Histogram  
b) Pie chart  
c) Scatter plot  
d) Line graph  
**Answer:** a) Histogram

**31. Which research design is best suited for studying cause-and-effect relationships?**

a) Correlational research  
b) Experimental research  
c) Descriptive research  
d) Exploratory research  
**Answer:** b) Experimental research

**32. A research design that combines both qualitative and quantitative methods is called:**

a) Mixed-methods research  
b) Multimodal research  
c) Integrated research  
d) Comprehensive research  
**Answer:** a) Mixed-methods research

**33. In research terminology, the term “operational definition” refers to:**

a) A universally accepted definition of a concept  
b) Theoretical explanation of a concept  
c) Defining variables in terms of measurement procedures  
d) A complex hypothesis  
**Answer:** c) Defining variables in terms of measurement procedures

**34. Which statistical test is used to determine the relationship between two variables?**

a) ANOVA  
b) Correlation analysis  
c) Chi-square test  
d) Regression analysis  
**Answer:** b) Correlation analysis

**35. The purpose of a pilot study is to:**

a) Validate the research hypothesis  
b) Conduct a mini version of the main study  
c) Perform a detailed literature review  
d) Analyze the data in advance  
**Answer:** b) Conduct a mini version of the main study

**36. What is the main characteristic of descriptive research?**

a) It involves hypothesis testing  
b) It describes characteristics of a population or phenomenon  
c) It predicts future trends  
d) It determines cause-and-effect relationships  
**Answer:** b) It describes characteristics of a population or phenomenon

**37. Informed consent in research ensures that participants:**

a) Are compensated for their time  
b) Participate voluntarily after understanding the study details  
c) Provide data anonymously  
d) Agree to publish the results  
**Answer:** b) Participate voluntarily after understanding the study details

**38. The type of research that seeks to answer “what” questions is:**

a) Explanatory research  
b) Descriptive research  
c) Exploratory research  
d) Experimental research  
**Answer:** b) Descriptive research

**39. Which of the following is an example of primary data?**

a) Data collected from previous studies  
b) Data collected through surveys  
c) Data obtained from books  
d) Data derived from government reports  
**Answer:** b) Data collected through surveys

**40. In hypothesis testing, a p-value less than 0.05 indicates:**

a) The null hypothesis is true  
b) Strong evidence against the null hypothesis  
c) No significant difference  
d) Insufficient sample size  
**Answer:** b) Strong evidence against the null hypothesis

**41. Research is considered reliable if:**

a) It is conducted by a famous researcher  
b) It is free from bias  
c) It produces consistent results over time  
d) It has a large sample size  
**Answer:** c) It produces consistent results over time

**42. An example of secondary data is:**

a) Data collected from a survey  
b) Data obtained from government publications  
c) Data collected during an experiment  
d) Data obtained from direct interviews  
**Answer:** b) Data obtained from government publications

**43. The Hawthorne Effect refers to:**

a) A change in participants’ behavior due to their awareness of being observed  
b) A bias introduced by the researcher  
c) The impact of sample size on results  
d) A specific statistical error  
**Answer:** a) A change in participants’ behavior due to their awareness of being observed

**44. When data is collected at a single point in time, the study is called:**

a) Longitudinal  
b) Experimental  
c) Cross-sectional  
d) Comparative  
**Answer:** c) Cross-sectional

**45. Which of the following is a feature of qualitative research?**

a) It is objective and numerical  
b) It focuses on meaning and context  
c) It relies on structured questionnaires  
d) It uses statistical analysis extensively  
**Answer:** b) It focuses on meaning and context

**46. The purpose of using a control group in an experiment is to:**

a) Increase the sample size  
b) Serve as a basis for comparison  
c) Eliminate the independent variable  
d) Randomize the sample  
**Answer:** b) Serve as a basis for comparison

**47. Which of the following is an example of non-probability sampling?**

a) Simple random sampling  
b) Stratified sampling  
c) Purposive sampling  
d) Systematic sampling  
**Answer:** c) Purposive sampling

**48. Which of the following is a graphical representation of data distribution?**

a) Frequency table  
b) Histogram  
c) Sampling frame  
d) Literature review  
**Answer:** b) Histogram

**49. What is the primary aim of basic research?**

a) Solve immediate problems  
b) Advance theoretical knowledge  
c) Test specific applications  
d) Develop commercial products  
**Answer:** b) Advance theoretical knowledge

**50. Which type of validity is concerned with whether the findings can be generalized to other settings?**

a) Construct validity  
b) Internal validity  
c) External validity  
d) Predictive validity  
**Answer:** c) External validity

**51. A hypothesis is rejected when:**

a) The p-value is greater than 0.05  
b) The results do not support the null hypothesis  
c) The independent variable is constant  
d) The data collection method is flawed  
**Answer:** b) The results do not support the null hypothesis

**52. A Likert scale is commonly used to measure:**

a) Physical attributes  
b) Attitudes or opinions  
c) Statistical variance  
d) Experimental outcomes  
**Answer:** b) Attitudes or opinions

**53. Which of the following methods is used to determine the sample size in research?**

a) Convenience sampling  
b) Statistical formulae  
c) Randomization  
d) Hypothesis testing  
**Answer:** b) Statistical formulae

**54. The process of systematically organizing and summarizing research findings is called:**

a) Analysis  
b) Interpretation  
c) Coding  
d) Data tabulation  
**Answer:** d) Data tabulation

**55. In research, a confounding variable is:**

a) A variable unrelated to the study  
b) A variable that affects both the independent and dependent variables  
c) The main focus of the study  
d) A variable used to validate results  
**Answer:** b) A variable that affects both the independent and dependent variables

**56. Research bias can be minimized by:**

a) Increasing sample size  
b) Using standardized data collection methods  
c) Selecting a convenient sample  
d) Conducting experiments repeatedly  
**Answer:** b) Using standardized data collection methods

**57. The Delphi technique is used for:**

a) Collecting quantitative data  
b) Developing a consensus among experts  
c) Analyzing historical trends  
d) Conducting field experiments  
**Answer:** b) Developing a consensus among experts

**58. In experimental research, randomization ensures:**

a) Equal treatment of all variables  
b) Elimination of all confounding variables  
c) Equal chances of selection for participants  
d) The validity of the null hypothesis  
**Answer:** c) Equal chances of selection for participants

**59. In the context of research ethics, “debriefing” refers to:**

a) Obtaining informed consent  
b) Explaining the purpose of the study to participants after completion  
c) Ensuring data anonymity  
d) Avoiding plagiarism  
**Answer:** b) Explaining the purpose of the study to participants after completion

**60. A population in research refers to:**

a) A large group of participants in an experiment  
b) The entire set of individuals or objects of interest  
c) A randomly selected group for a study  
d) A group that receives experimental treatment  
**Answer:** b) The entire set of individuals or objects of interest

**61. What does a high standard deviation in a dataset indicate?**

a) Data points are very close to the mean  
b) Data points are spread out over a wider range of values  
c) There is no variability in the data  
d) The data is not normally distributed  
**Answer:** b) Data points are spread out over a wider range of values

**62. A double-blind study is designed to:**

a) Eliminate bias from both the researcher and the participant  
b) Ensure random sampling  
c) Increase sample size  
d) Test two hypotheses simultaneously  
**Answer:** a) Eliminate bias from both the researcher and the participant

**63. Which of the following is an example of qualitative data?**

a) Test scores  
b) Annual income  
c) Gender  
d) Number of books read  
**Answer:** c) Gender

**64. Which is NOT a step in the research process?**

a) Defining the problem  
b) Data collection  
c) Guessing outcomes  
d) Analyzing data  
**Answer:** c) Guessing outcomes

**65. A measure of how well a test predicts an outcome is known as:**

a) Construct validity  
b) Predictive validity  
c) Internal consistency  
d) External validity  
**Answer:** b) Predictive validity

**66. What is the main purpose of exploratory research?**

a) To test hypotheses  
b) To find solutions to problems  
c) To gain insights and familiarity with the subject  
d) To validate research instruments  
**Answer:** c) To gain insights and familiarity with the subject

**67. In research, the term “population” refers to:**

a) A subset of participants  
b) The group receiving experimental treatment  
c) The total set of subjects of interest  
d) The group providing informed consent  
**Answer:** c) The total set of subjects of interest

**68. What type of error occurs when a null hypothesis is incorrectly rejected?**

a) Type I error  
b) Type II error  
c) Sampling error  
d) Measurement error  
**Answer:** a) Type I error

**69. Research that combines elements of quantitative and qualitative approaches is called:**

a) Correlational research  
b) Mixed-methods research  
c) Descriptive research  
d) Experimental research  
**Answer:** b) Mixed-methods research

**70. Which of the following tools is often used in ethnographic research?**

a) Surveys  
b) Participant observation  
c) Laboratory experiments  
d) Statistical analysis  
**Answer:** b) Participant observation

**71. A null hypothesis is considered true until:**

a) It is disproved through statistical analysis  
b) The research data confirms the alternative hypothesis  
c) A p-value greater than 0.05 is found  
d) Peer review is complete  
**Answer:** a) It is disproved through statistical analysis

**72. In research, the operational definition of a variable refers to:**

a) Its dictionary meaning  
b) A theoretical explanation  
c) The way it is measured or manipulated in the study  
d) The standardized units used for measurement  
**Answer:** c) The way it is measured or manipulated in the study

**73. The term “sampling error” refers to:**

a) Errors made during data analysis  
b) The difference between sample results and the true population value  
c) Errors in data collection instruments  
d) Mistakes in hypothesis formulation  
**Answer:** b) The difference between sample results and the true population value

**74. In an experimental study, the placebo group is:**

a) The group receiving the independent variable  
b) The group that receives no treatment or a fake treatment  
c) The group that determines the sample size  
d) The group used for pilot testing  
**Answer:** b) The group that receives no treatment or a fake treatment

**75. A literature review is essential in research because:**

a) It helps to avoid duplication of effort  
b) It provides historical data for comparison  
c) It ensures ethical compliance  
d) It guarantees statistically significant results  
**Answer:** a) It helps to avoid duplication of effort

**76. A t-test is used to:**

a) Measure variability in a dataset  
b) Compare the means of two groups  
c) Analyze categorical data  
d) Establish correlations between variables  
**Answer:** b) Compare the means of two groups

**77. What does it mean when research findings are statistically significant?**

a) The findings are practically important  
b) The findings are likely due to chance  
c) The findings are unlikely due to chance  
d) The findings have been validated externally  
**Answer:** c) The findings are unlikely due to chance

**78. The independent variable in a study is:**

a) The outcome being measured  
b) The variable manipulated by the researcher  
c) The constant across all experiments  
d) The variable that confounds the results  
**Answer:** b) The variable manipulated by the researcher

**79. A scatter plot is used to:**

a) Display frequencies of data  
b) Show the relationship between two variables  
c) Represent measures of central tendency  
d) Illustrate experimental designs  
**Answer:** b) Show the relationship between two variables

**80. What is the purpose of randomization in experimental research?**

a) To increase the sample size  
b) To control for confounding variables  
c) To focus on a specific population  
d) To ensure external validity  
**Answer:** b) To control for confounding variables

**81. What is the primary characteristic of experimental research?**

a) It explores cause-and-effect relationships  
b) It involves data collection through observation  
c) It uses historical data for analysis  
d) It focuses on numerical data only  
**Answer:** a) It explores cause-and-effect relationships

**82. A structured interview is:**

a) An open-ended discussion  
b) A predefined set of questions asked in the same way  
c) A flexible conversation guided by the researcher  
d) A method used only in qualitative research  
**Answer:** b) A predefined set of questions asked in the same way

**83. What does “triangulation” in research refer to?**

a) Using three hypotheses in a study  
b) Employing multiple methods to study the same phenomenon  
c) Dividing data into three equal parts  
d) Using statistical tools for three variables  
**Answer:** b) Employing multiple methods to study the same phenomenon

**84. A hypothesis that states there is no relationship between two variables is called:**

a) Directional hypothesis  
b) Alternative hypothesis  
c) Null hypothesis  
d) Research hypothesis  
**Answer:** c) Null hypothesis

**85. What is the purpose of a research proposal?**

a) To present the findings of a study  
b) To obtain funding or approval for a study  
c) To summarize existing literature  
d) To analyze research data  
**Answer:** b) To obtain funding or approval for a study

**86. Snowball sampling is most useful when:**

a) The population is large and well-defined  
b) The population is hard to access or identify  
c) The research focuses on numerical data  
d) A random sample is required  
**Answer:** b) The population is hard to access or identify

**87. The term “validity” in research refers to:**

a) The accuracy of the research findings  
b) The consistency of the research results  
c) The ethical compliance of the study  
d) The size of the sample used  
**Answer:** a) The accuracy of the research findings

**88. Which of the following is NOT a type of quantitative research?**

a) Experimental research  
b) Survey research  
c) Phenomenological research  
d) Correlational research  
**Answer:** c) Phenomenological research

**89. What is the primary aim of longitudinal research?**

a) To explore relationships between variables at one point in time  
b) To study changes over an extended period  
c) To identify cause-and-effect relationships  
d) To validate research tools  
**Answer:** b) To study changes over an extended period

**90. In research, a pilot study is conducted to:**

a) Test the main hypothesis  
b) Refine the research methodology  
c) Publish preliminary results  
d) Compare findings with other studies  
**Answer:** b) Refine the research methodology

**91. Which of the following measures dispersion in a dataset?**

a) Mean  
b) Median  
c) Standard deviation  
d) Mode  
**Answer:** c) Standard deviation

**92. Ethical research involves all the following EXCEPT:**

a) Informed consent  
b) Ensuring confidentiality  
c) Deceiving participants for better results  
d) Avoiding plagiarism  
**Answer:** c) Deceiving participants for better results

**93. What does the term “sampling frame” refer to?**

a) The total population  
b) The list of all individuals in the population  
c) The subset of individuals selected for the study  
d) The method used to select participants  
**Answer:** b) The list of all individuals in the population

**94. Which test is used to examine the association between categorical variables?**

a) T-test  
b) Chi-square test  
c) ANOVA  
d) Correlation analysis  
**Answer:** b) Chi-square test

**95. Which of the following is an attribute of qualitative research?**

a) It tests hypotheses  
b) It uses numerical data  
c) It emphasizes participant perspectives  
d) It is always conducted in laboratories  
**Answer:** c) It emphasizes participant perspectives

**96. What is the primary purpose of peer review in research?**

a) To ensure the research meets ethical standards  
b) To verify the findings of the study  
c) To evaluate the quality and validity of the research  
d) To increase the sample size  
**Answer:** c) To evaluate the quality and validity of the research

**97. The dependent variable in an experiment is:**

a) The variable manipulated by the researcher  
b) The outcome measured in response to the independent variable  
c) Always numerical  
d) Always qualitative  
**Answer:** b) The outcome measured in response to the independent variable

**98. The term “open-ended question” refers to:**

a) Questions with predefined response options  
b) Questions allowing participants to answer freely in their own words  
c) Questions used in quantitative research  
d) Questions designed for quick analysis  
**Answer:** b) Questions allowing participants to answer freely in their own words

**99. The main disadvantage of convenience sampling is:**

a) It is time-consuming  
b) It requires complex statistical tools  
c) It may not represent the population accurately  
d) It is unethical  
**Answer:** c) It may not represent the population accurately

**100. In research, an “anomaly” refers to:**

a) A standard observation in the data  
b) A deviation from expected patterns or results  
c) The main focus of the study  
d) An error in statistical calculations  
**Answer:** b) A deviation from expected patterns or results

**1. What is the primary purpose of a firewall?**

a) To enhance system speed  
b) To monitor and control incoming and outgoing network traffic  
c) To encrypt sensitive data  
d) To perform antivirus scans  
**Answer:** b) To monitor and control incoming and outgoing network traffic

**2. Which of the following is NOT an example of a cyberattack?**

a) Phishing  
b) Denial of Service (DoS)  
c) Data Encryption  
d) Man-in-the-Middle attack  
**Answer:** c) Data Encryption

**3. The process of scrambling data to make it unreadable without a decryption key is called:**

a) Encoding  
b) Encrypting  
c) Compressing  
d) Hashing  
**Answer:** b) Encrypting

**4. A strong password typically contains:**

a) Only uppercase letters  
b) A combination of letters, numbers, and special characters  
c) Only numbers  
d) Your name or date of birth  
**Answer:** b) A combination of letters, numbers, and special characters

**5. Which of the following protocols is used to securely transfer files over the internet?**

a) FTP  
b) HTTP  
c) SFTP  
d) SMTP  
**Answer:** c) SFTP

**6. What does the acronym “VPN” stand for?**

a) Virtual Private Network  
b) Virtual Public Node  
c) Verified Private Network  
d) Virtual Personal Node  
**Answer:** a) Virtual Private Network

**7. A botnet is:**

a) A collection of interconnected devices controlled by malware  
b) A secure database for sensitive information  
c) A type of phishing attack  
d) A vulnerability in firewalls  
**Answer:** a) A collection of interconnected devices controlled by malware

**8. What is the purpose of a digital certificate?**

a) To authenticate the identity of a user or website  
b) To encrypt data on hard drives  
c) To block spam emails  
d) To scan for malware on a network  
**Answer:** a) To authenticate the identity of a user or website

**9. Which of the following is a form of social engineering?**

a) SQL injection  
b) Phishing  
c) Brute force attack  
d) Buffer overflow  
**Answer:** b) Phishing

**10. The term "zero-day vulnerability" refers to:**

a) A vulnerability discovered after a system update  
b) A vulnerability that has not been patched or exploited yet  
c) A vulnerability that cannot be fixed  
d) A vulnerability in open-source software  
**Answer:** b) A vulnerability that has not been patched or exploited yet

**11. Which of the following is a symmetric encryption algorithm?**

a) RSA  
b) DES  
c) DSA  
d) ECC  
**Answer:** b) DES

**12. In a Denial of Service (DoS) attack, the attacker’s goal is to:**

a) Steal sensitive information  
b) Overload a system to disrupt its functionality  
c) Inject malicious code into a database  
d) Encrypt user data for ransom  
**Answer:** b) Overload a system to disrupt its functionality

**13. What is a common indicator of a phishing email?**

a) An email from a known contact  
b) Typos and grammatical errors  
c) A generic greeting like “Dear Customer”  
d) Both b and c  
**Answer:** d) Both b and c

**14. Which of the following tools is commonly used for network security monitoring?**

a) Wireshark  
b) Blender  
c) Adobe Acrobat  
d) Google Drive  
**Answer:** a) Wireshark

**15. A Public Key Infrastructure (PKI) is used for:**

a) Antivirus updates  
b) Creating and managing digital certificates  
c) Compressing large files  
d) Securing hardware devices  
**Answer:** b) Creating and managing digital certificates

**16. Malware that locks users out of their system until a ransom is paid is called:**

a) Trojan  
b) Ransomware  
c) Spyware  
d) Worm  
**Answer:** b) Ransomware

**17. Which of the following is NOT a type of authentication factor?**

a) Something you know (password)  
b) Something you have (smart card)  
c) Something you are (biometric)  
d) Something you think  
**Answer:** d) Something you think

**18. What does the term “brute force attack” mean?**

a) Physically breaking into a server room  
b) Repeatedly attempting every possible password combination to gain access  
c) Sending malware to a target computer  
d) Overloading a network with traffic  
**Answer:** b) Repeatedly attempting every possible password combination to gain access

**19. Which layer of the OSI model does HTTPS operate on?**

a) Transport layer  
b) Network layer  
c) Application layer  
d) Physical layer  
**Answer:** c) Application layer

**20. What is a honeypot in cybersecurity?**

a) A secure password storage tool  
b) A decoy system set up to trap attackers  
c) A protocol for secure data transfer  
d) A vulnerability scanner  
**Answer:** b) A decoy system set up to trap attackers

Let’s delve into **specific subtopics** of cybersecurity for focused MCQs. Here’s the breakdown:

1. **Encryption**
2. **Network Security**
3. **Ethical Hacking**

### ****Encryption MCQs****

### ****1. Which algorithm is widely used for public-key encryption?****

a) AES  
b) RSA  
c) SHA-256  
d) DES  
**Answer:** b) RSA

### ****2. What is the size of the key used in the AES-256 encryption algorithm?****

a) 128 bits  
b) 192 bits  
c) 256 bits  
d) 512 bits  
**Answer:** c) 256 bits

### ****3. The main difference between symmetric and asymmetric encryption is:****

a) Symmetric uses a single key, while asymmetric uses a pair of keys  
b) Symmetric is slower than asymmetric encryption  
c) Asymmetric does not use keys  
d) Symmetric encryption is used only for email security  
**Answer:** a) Symmetric uses a single key, while asymmetric uses a pair of keys

### ****4. What does hashing primarily ensure in data security?****

a) Confidentiality  
b) Integrity  
c) Availability  
d) Authentication  
**Answer:** b) Integrity

### ****5. Which of the following algorithms is NOT used for hashing?****

a) MD5  
b) SHA-256  
c) Blowfish  
d) SHA-1  
**Answer:** c) Blowfish

### ****6. What is the primary role of the Diffie-Hellman algorithm?****

a) Symmetric key generation  
b) Public key exchange  
c) Data encryption  
d) Hash generation  
**Answer:** b) Public key exchange

### ****7. The process of converting plaintext into ciphertext is called:****

a) Decryption  
b) Hashing  
c) Encryption  
d) Key generation  
**Answer:** c) Encryption

### ****8. Which type of encryption is commonly used in secure email communication?****

a) Symmetric encryption  
b) Asymmetric encryption  
c) Hashing  
d) Base64 encoding  
**Answer:** b) Asymmetric encryption

### ****9. What is the output length of the SHA-256 hashing algorithm?****

a) 128 bits  
b) 192 bits  
c) 256 bits  
d) 512 bits  
**Answer:** c) 256 bits

### ****10. What does the term “salting” in cryptography mean?****

a) Adding random data to a password before hashing  
b) Encrypting data with two keys  
c) Compressing ciphertext to save space  
d) Using a secondary hash function for security  
**Answer:** a) Adding random data to a password before hashing

### ****11. Which of the following is a stream cipher?****

a) AES  
b) RC4  
c) RSA  
d) SHA-512  
**Answer:** b) RC4

### ****12. Which encryption standard replaced DES due to its vulnerabilities?****

a) Blowfish  
b) Twofish  
c) AES  
d) RSA  
**Answer:** c) AES

### ****13. What does a digital signature ensure?****

a) Data confidentiality  
b) Data authenticity and integrity  
c) Data encryption  
d) Key exchange  
**Answer:** b) Data authenticity and integrity

### ****14. In asymmetric encryption, which key is used to encrypt data?****

a) Public key  
b) Private key  
c) Both public and private keys  
d) Session key  
**Answer:** a) Public key

### ****15. The main weakness of MD5 hashing is:****

a) Its large hash size  
b) Its speed  
c) Vulnerability to collision attacks  
d) Incompatibility with encryption algorithms  
**Answer:** c) Vulnerability to collision attacks

### ****Ethical Hacking MCQs****

### ****1. What is the primary goal of ethical hacking?****

a) To disrupt network operations  
b) To identify vulnerabilities before malicious hackers can exploit them  
c) To cause damage to a target system  
d) To steal data for analysis  
**Answer:** b) To identify vulnerabilities before malicious hackers can exploit them

### ****2. Which of the following is NOT a common ethical hacking tool?****

a) Metasploit  
b) Wireshark  
c) Nmap  
d) Microsoft Word  
**Answer:** d) Microsoft Word

### ****3. What is a "white-hat" hacker?****

a) A hacker who works for malicious purposes  
b) A hacker who helps organizations secure their systems  
c) A hacker who works alone and never discloses findings  
d) A hacker who uses viruses to test systems  
**Answer:** b) A hacker who helps organizations secure their systems

### ****4. Which of the following is NOT part of the information-gathering phase of ethical hacking?****

a) Scanning for open ports  
b) Exploiting vulnerabilities  
c) Social engineering  
d) Reconnaissance  
**Answer:** b) Exploiting vulnerabilities

### ****5. What is the purpose of a penetration test in ethical hacking?****

a) To steal sensitive data  
b) To test and evaluate the security of a system by simulating an attack  
c) To monitor system traffic for abnormal behavior  
d) To create backups of sensitive data  
**Answer:** b) To test and evaluate the security of a system by simulating an attack

### ****6. The term "phishing" refers to:****

a) Sending malicious links via email to steal user credentials  
b) Bypassing a firewall  
c) Injecting malicious code into a website  
d) Scanning a network for vulnerabilities  
**Answer:** a) Sending malicious links via email to steal user credentials

### ****7. Which of the following is NOT a step in the ethical hacking process?****

a) Reconnaissance  
b) Scanning  
c) Exploiting vulnerabilities  
d) Performing illegal actions  
**Answer:** d) Performing illegal actions

### ****8. A "backdoor" in a system is used to:****

a) Speed up system performance  
b) Provide unauthorized access to an attacker  
c) Encrypt system data  
d) Clean up system vulnerabilities  
**Answer:** b) Provide unauthorized access to an attacker

### ****9. What is the role of "social engineering" in ethical hacking?****

a) Gaining unauthorized access to networks using technical methods  
b) Manipulating people to divulge confidential information or perform actions  
c) Developing malware for testing purposes  
d) Encrypting data to prevent theft  
**Answer:** b) Manipulating people to divulge confidential information or perform actions

### ****10. What is a "DoS" attack in the context of ethical hacking?****

a) A method for stealing data from a website  
b) A type of attack that attempts to disrupt the availability of a service or system  
c) An encryption-based attack on communication systems  
d) A physical break-in to an organization's network infrastructure  
**Answer:** b) A type of attack that attempts to disrupt the availability of a service or system

### ****Network Security MCQs****

### ****11. Which of the following is the main purpose of a Virtual Private Network (VPN)?****

a) To provide unrestricted access to all websites  
b) To secure communications over public networks  
c) To store encrypted data securely  
d) To block DDoS attacks  
**Answer:** b) To secure communications over public networks

### ****12. Which of the following is a form of malware that disguises itself as legitimate software?****

a) Worm  
b) Trojan Horse  
c) Ransomware  
d) Rootkit  
**Answer:** b) Trojan Horse

### ****13. Which security measure is often used to protect the perimeter of a network?****

a) Proxy server  
b) Network firewall  
c) IDS/IPS  
d) Antivirus software  
**Answer:** b) Network firewall

### ****14. In the context of network security, what does the term "Pharming" refer to?****

a) Disguising malware as legitimate software  
b) Redirecting a website's traffic to a fraudulent site  
c) Monitoring network traffic for sensitive information  
d) Overloading a system with excessive data  
**Answer:** b) Redirecting a website's traffic to a fraudulent site

### ****15. A honeypot is used in network security primarily to:****

a) Encrypt data  
b) Protect a network from viruses  
c) Distract and deceive attackers by mimicking real systems  
d) Improve system performance  
**Answer:** c) Distract and deceive attackers by mimicking real systems

### ****16. Which of the following is NOT a type of network firewall?****

a) Packet-filtering firewall  
b) Stateful inspection firewall  
c) Proxy firewall  
d) Data integrity firewall  
**Answer:** d) Data integrity firewall

### ****17. Which of the following technologies is used to implement Virtual Local Area Networks (VLANs)?****

a) DNS  
b) VPN  
c) Router  
d) Switch  
**Answer:** d) Switch

### ****18. The purpose of a Demilitarized Zone (DMZ) is to:****

a) Ensure unauthorized traffic is always allowed  
b) Isolate and secure internal systems from external threats  
c) Allow attackers easy access to internal resources  
d) Encrypt all incoming and outgoing data  
**Answer:** b) Isolate and secure internal systems from external threats

### ****19. Which of the following is an advantage of SSL/TLS encryption?****

a) It is free and open-source  
b) It helps secure communications over the internet  
c) It eliminates the need for firewalls  
d) It completely prevents all forms of cyberattacks  
**Answer:** b) It helps secure communications over the internet

### ****20. The concept of "network segmentation" involves:****

a) Encrypting all network data  
b) Dividing a network into smaller, isolated subnets to improve security  
c) Allowing free traffic flow between all devices in a network  
d) Installing one central firewall for the entire network  
**Answer:** b) Dividing a network into smaller, isolated subnets to improve security

### ****Ethical Hacking MCQs****

### ****21. The "penetration testing" phase involves:****

a) Exploiting vulnerabilities for malicious purposes  
b) Identifying weaknesses in a system without exploiting them  
c) Performing a real-world cyberattack  
d) Installing malware on the network  
**Answer:** b) Identifying weaknesses in a system without exploiting them

### ****22. The term "ethical hacking" refers to:****

a) Hacking systems with malicious intent  
b) Testing systems without permission for profit  
c) Hacking for personal gain  
d) Conducting authorized testing to find and fix security vulnerabilities  
**Answer:** d) Conducting authorized testing to find and fix security vulnerabilities

### ****23. In ethical hacking, the process of "footprinting" involves:****

a) Developing a detailed attack plan  
b) Gathering information about the target system through publicly available sources  
c) Gaining access to a system's sensitive data  
d) Installing backdoors in the target system  
**Answer:** b) Gathering information about the target system through publicly available sources

### ****24. The first step in an ethical hacking engagement is usually:****

a) Gaining unauthorized access to the target system  
b) Scanning the system for open ports  
c) Identifying potential vulnerabilities  
d) Getting written authorization from the system owner  
**Answer:** d) Getting written authorization from the system owner

### ****25. Which of the following is an example of a reconnaissance technique used in ethical hacking?****

a) SQL Injection  
b) Social Engineering  
c) Port Scanning  
d) Rootkit installation  
**Answer:** c) Port Scanning

### ****26. In an ethical hacking assessment, a "black-box" test refers to:****

a) Testing without prior knowledge of the target system  
b) Using pre-disclosed system information  
c) Testing the physical security of an organization  
d) Testing a network from within a secured environment  
**Answer:** a) Testing without prior knowledge of the target system

### ****27. Which of the following tools is primarily used for network sniffing during ethical hacking?****

a) Metasploit  
b) Wireshark  
c) Nessus  
d) John the Ripper  
**Answer:** b) Wireshark

### ****28. In ethical hacking, "privilege escalation" refers to:****

a) Moving from one network to another  
b) Elevating the hacker's access rights to gain more control over the system  
c) Performing a denial-of-service attack  
d) Disabling a firewall  
**Answer:** b) Elevating the hacker's access rights to gain more control over the system

### ****29. Which of the following is an example of a social engineering attack?****

a) SQL Injection  
b) Spear Phishing  
c) DDoS attack  
d) Man-in-the-Middle attack  
**Answer:** b) Spear Phishing

### ****30. Which of the following ethical hacking techniques is used to gain access to a target system?****

a) Reconnaissance  
b) Exploitation  
c) Hashing  
d) Steganography  
**Answer:** b) Exploitation

### ****31. Which of the following vulnerabilities is commonly tested during penetration testing?****

a) SQL Injection  
b) Physical security vulnerabilities  
c) Social media exploits  
d) User password strength  
**Answer:** a) SQL Injection