

Sikkim Public Service Commission

Main Written Examination for the Post of Digital Project Analyst

Paper II
Main Paper

Time Allowed : 3.00 Hrs.

Maximum Marks : 300

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before answering the questions :-

1. **IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.**
2. **Use only Black Ball Point Pen to fill the OMR sheet.**
3. **Do not write anything else on the OMR Answer Sheet except the required information.**
4. **This Test Booklet contains two sections, Section I & Section II**
5. **Section I consists of 75 Multiple Choice Questions of 2 marks each. Candidates are required to attempt all of them on the OMR sheet provided.**
6. **Section II consists of Short Answer type questions & Long Answer type questions. Candidates are required to attempt all of them on the Separate answer sheet provided.**
7. **Marking Scheme**
THERE WILL BE NEGATIVE MARKING FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.
 - (i) **There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, one-third of the marks assigned to that question will be deducted as penalty.**
 - (ii) **If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to the question.**
 - (iii) **If a question is left blank. i.e., no answer is given by the candidate, there will be no penalty for that question.**

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

Section I
Digital Project Analyst

Multiple Choice Questions

[75x2=150]

- 1) How is a record refers to by a relational database developer?
 - A) a criteria
 - B) a relation
 - C) a tuple
 - D) an attribute
- 2) Which OSI layer performs token management?
 - A) Network Layer
 - B) Transport Layer
 - C) Session Layer
 - D) Presentation Layer
- 3) Identify the one which is not a kind of data warehouse application.
 - A) Data mining
 - B) Transaction processing
 - C) Information processing
 - D) Analytical processing
- 4) Which of the windows option is/are the central to the development of Visual Basic applications?
 - A) Project window
 - B) Form window
 - C) Properties window
 - D) All of the above
- 5) For assigning the value "centerscreen" for form's startposition property, the correct way is
 - A) StartPosition.Form1=FormStartPosition.CenterScreen
 - B) Form1.StartPosition=CenterScreen.FormStartPosition
 - C) Form1.StartPosition=FormStartPosition.CenterScreen
 - D) Form1.StartPosition=FormStartPosition.Location.CenterScreen
- 6) The most appropriate for a person to person payment system in e-commerce is to
 - A) Supports electronic payment for on-line and physical store purchases of goods or services after the purchase has taken place.
 - B) sends money using the web to individuals who are not setup to accept credit card payments
 - C) refers to digital currency that can be used for micro-payments
 - D) provides secure services for credit card payments on the internet

- 7) Under which Section of IT act does the misuse of digital signatures for fraudulent purposes comes?
- A) Section 72
 - B) Section 71
 - C) Section 66
 - D) Section 65
- 8) Which of the following is observed during the Unit Testing?
- A) Stability of code
 - B) Performance of the Program
 - C) Error Handling
 - D) Efficiency of the algorithm
- 9) Choose the one which is not included in Data Mining.
- A) Data Transformation
 - B) Data Archeology
 - C) Knowledge Extraction
 - D) Data Exploration
- 10) Which of the following terms are related with the main Email Servers and their Ports?
- i) POP3 ii) IMAP iii) HTTP iv) SMTP
- A) i) and ii)
 - B) ii only
 - C) ii) and iii) only
 - D) i), ii), iii) and iv)
- 11) Which of the following option is NOT the public properties of TextBox objects?
- A) AutoSize
 - B) BackColor
 - C) BulletIndent
 - D) MaxLength
- 12) Which of the following is correct in VB coding?
- A) "Dog" = "dog"
 - B) "Dog" < "dog"
 - C) "Dog" > "dog"
 - D) Relational operators are only valid for numeric values
- 13) In VB coding, the variables declared inside a procedure are said to have
- A) local scope
 - B) procedure-level scope
 - C) class-level scope
 - D) none of the above

14) Project Management Life Cycle has different phases. The correct order among the following options will be

1. Design,
2. Marketing,
3. Analysis and evaluation,
4. Inspection, testing and delivery

- A) 2-3-1-4
- B) 1-2-3-4
- C) 3-2-1-4
- D) 4-3-2-1

15) State the following statements are True or False for arrays in Visual Basic .NET

- I. Array are objects in VB.NET
- II. Array variables can have the public, protected, friend, private or protected friend specifier

- A) True, False
- B) False, True
- C) True, True
- D) False, False

16) WINS is related with server and what is the full form of WINS?

- A) Windows Intranet Name Server
- B) Windows Internet Name Service
- C) Windows Intranet Name Service
- D) Windows Internet Name Server

17) What is ETL Stand for?

- A) Execute Transit and Load
- B) Extract Transmission Load
- C) Execute Transform and Load
- D) Extract Transform and Load

18) Which is the ISO standard that is applied in the Quality Assurance Standard in Software Engineering?

- A) ISO 2000
- B) ISO 9001
- C) ISO 2001
- D) ISO 9000

19) Identify the valid name for an identifier in VB.

- A) Two_One
- B) One@two
- C) Two One
- D) Two.One

- 20) Data warehouse is based on which architecture?
- A) DBMS
 - B) Sybase
 - C) RDBMS
 - D) SQL Server
- 21) In any cyber-crime that comes under section 66 of IT Act, the amount of fine that the accused person has to pay is around Rs
- A) 5 lakhs
 - B) 4 lakhs
 - C) 3 lakhs
 - D) 2 lakhs
- 22) In Visual Basic the collection of file is
- A) Folder
 - B) Group
 - C) Class
 - D) Project
- 23) The .NET framework has replaced both COM and distributed COM(DCOM) technology. Which VB.NET calls is used to access to COM?
- A) COM technology
 - B) COM framework
 - C) COM interoperability
 - D) COM distribution
- 24) Which DBMS language is used that requires a user to specify the data to be retrieved without specifying exactly how to get it?
- A) Procedural DML
 - B) Non-Procedural DML
 - C) Procedural DDL
 - D) Non-Procedural DDL
- 25) In the TCP/IP internetwork layer, which are the most important and common protocols?
- I. Internet protocol(IP)
 - II. Internet control Message Protocol(ICMP)
 - III. Bootstrap Protocol (BooTP)
 - IV. Dynamic Host Configuration Protocol (DHCP)
 - V. Address Resolution Protocol (ARP)
- A) i, ii, iii and iv only
 - B) i, iii, iv and v only
 - C) ii, iii, iv and v only
 - D) i, ii, iii, iv and v

- 26) In the following which one is the most appropriate in the Rnd statement that will generate a(n)?
- A) decimal value between 0.0 and 1.0
 - B) integer value between 0.01 and 1.00
 - C) decimal value between 0.01 and 1.00
 - D) decimal value between 0.0 and up to 1.0, but not including 1.0
- 27) State whether the following is True or False.
- I. In bus topology, heavy Network traffic slows down the bus speed.
 - II. ii) It is multi-point configuration.
- A) True, True
 - B) True, False
 - C) False, True
 - D) False, False
- 28) In a relational schema, each tuple is divided into fields called
- A) Relations
 - B) Domains
 - C) Queries
 - D) All of the above
- 29) Which option is the main function of transport layer?
- A) Node to node delivery
 - B) End to end delivery
 - C) Synchronization
 - D) Updating and maintaining routing tables
- 30) By default, the function procedures are
- A) Private
 - B) Protected
 - C) Public
 - D) Closed
- 31) The card which can be used by the buyers during the time of purchase and in which the amount will be immediately debited from the buyers account is called
- A) E-Distributor
 - B) Debit Card
 - C) Credit Card
 - D) Power Card
- 32) In the options, identify the variable that does not change its value in the execution of the program.
- A) String
 - B) Constant
 - C) Array
 - D) Numeric

- 33) Under which Section of the IT Act 2008 of cyber-crime more precisely about anyone publishes sexually explicit digital content, one has to pay a legitimate amount of fine?
- A) Section 67-A
 - B) Section 67-B
 - C) Section 67-C
 - D) Section 67-D
- 34) Which of the following software test is consider to check that each Program function is operational?
- A) White Box test
 - B) Integrated test
 - C) Black Box test
 - D) Grey test
- 35) State whether the following is True or False.
- I. A candidate key is a minimal super key.
 - II. A candidate key can also refer to a surrogate key.
- A) i-true, ii-false
 - B) i-false, ii-true
 - C) i-true, ii-true
 - D) i-false, ii-false
- 36) Which environment option listed below is for the supports of the software project?
- A) CLSS
 - B) SEE
 - C) FAST
 - D) CBSE
- 37) OLAP in data warehousing stand for
- A) Online Area Processing
 - B) Online Analytical Performance
 - C) Online Arial Preparation
 - D) Online Analytical Processing
- 38) Following are the characteristics of Project Mindset.
- A) Time, Responsiveness, Information sharing, Processes, structured planning
 - B) Time, Project management, Information sharing, Processes, structured planning
 - C) Time, Responsiveness, Information sharing, capability, structured planning
 - D) Time, Responsiveness, Information sharing, Processes, project planning

39) Which of the following infrastructure is necessary for carrying out C2C E-Commerce?

- I. World Wide Web
- II. Corporate network
- III. Electronic Data Interchange Standards
- IV. Secure Payment Services
- V. Secure electronic communication link connecting businesses

- A) i and ii
- B) ii and iv
- C) i and iii
- D) i and iv

40) In VB.net, which of the following is NOT the public property of RichTextBox Objects?

- A) DetectURLs
- B) DetectText
- C) BulletIndent
- D) RightMargin

41) Pair up for HTTP status code to their respective definitions listed below.

- | | |
|----------|--------------------------|
| I. 400 | a) OK |
| II. 500 | b) Not found |
| III. 200 | c) Continue |
| IV. 100 | d) Internal server error |

- A) i-b, ii-d, iii-a, iv-c
- B) i-a, ii-b, iii-c, iv-d
- C) i-b, ii-c, iii-a, iv-d
- D) i-b, ii-a, iii-c, iv-d

42) State true or false.

- I. SELECT operator is not a unary operator.
- II. PROJECT operator chooses subset of attributes or columns of a relation.

- A) i-True, ii-False
- B) i-True, ii-True
- C) i-False, ii-True
- D) i-False, ii-False

43) The identifier length in Visual Basic is

- A) 128
- B) 255
- C) 455
- D) 512

44) Which of the following describes e-commerce?

- A) Buying products from each other
- B) Buying services from each other
- C) Selling service from each other
- D) All of the above

45) In VB.net, which of the option is used for data handling which facilitates development of web applications?

- A) DAO
- B) RDO
- C) ADO
- D) ADO.NET

46) What are the 3(three) core steps that is involved in Six Sigma methodology?

- A) Define, measure and analyse
- B) Improve, analyse and control
- C) Improve, define and design
- D) Design, control and manage

47) In VB.Net, the Type casting is implemented by using

- A) Type()
- B) TypeDef()
- C) Btype()
- D) CType()

48) Identify from the following which is not the type of peer-to-peer cyber-crime?

- A) Phishing
- B) Injecting Trojans to a target victim
- C) Credit card details leak in deep web
- D) MiTM

49) Which of the following is not the layer of TCP/IP protocol?

- A) Application Layer
- B) Session Layer
- C) Transport Layer
- D) Internetwork layer

50) What is the name of the unshielded twisted pair (UTP) category 5, 5e or 6 cabling used over the IEEE 802.3ab defines Gigabit Ethernet transmission?

- A) 1000 BASE-T
- B) 1000 BASE-SX
- C) 1000 BASE-LX
- D) 1000 BASE-CX

51) To issue multiple CREATE TABLE, CREATE VIEW and GRANT statements in a single transaction, which SQL command is used?

- A) CREATE PACKAGE
- B) CREATE SCHEMA
- C) CREATE CLUSTER
- D) All of the above

52) In VB.NET, state whether the statement true or false.

- I. Function procedures are public by default.
 - II. Function procedure return values whereas sub procedures cannot return a value to the calling procedure.
- A) True, True
 - B) True, False
 - C) False, True
 - D) False, False

53) In the e-commerce security environment, which of the following constitutes the innermost layer?

- A) People
- B) Data
- C) Technology solutions
- D) Organizational policies and procedures

54) HTTP stands for

- A) Hyper Text Transfer Protocol
- B) Highly Time Transfer Pipe
- C) Huge Time Testing Protocol
- D) Hyper Transmitting Training Pipe

55) The responsibility(ies) of project manager is(are)

- A) Allocating resources
- B) Budgeting and cost control
- C) Tracking project expenditure
- D) All of the above

- 56) Which is false about forms and controls in Visual Basic?
- A) They are pre-built
 - B) New versions of the classes must be created with each project
 - C) They are graphical objects
 - D) Buttons can be created with the drag and drop method
- 57) Fibre optics is used on the principle of
- A) Refraction
 - B) Reflection
 - C) Acute angle
 - D) None of the above
- 58) What consist of Project performance?
- A) Time
 - B) Cost
 - C) Quality
 - D) All of the above
- 59) Which of the following is a valid Visual Basic conditional statement?
- A) $3 < m < 7$
 - B) $3 < m \text{ Or } < 7$
 - C) $3 < m \text{ Or } 7$
 - D) $(3 < m) \text{ Or } (m < 7)$
- 60) Which of the following can also apply Data mining?
- I. Text data
 - II. Spatial data
 - III. Networked data
 - IV. Data streams
 - V. Sequence data
- A) i, iii and v only
 - B) ii, and v only
 - C) ii, iii and v only
 - D) All the above
- 61) Identify the one which is not a web server.
- A) Apache
 - B) JDK
 - C) NGNIX
 - D) IIS

62) Software Prevention Costs do not include

- A) Quality planning costs
- B) Equipment calibration and maintenance
- C) Training equipment
- D) Formal technical reviews

63) The following is a piece of code from VB program. Choose the output of the following program when the button is clicked.

```
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
    Dim number As Double = 4
    DoubleAndSquare(number)
    txtBox.Text = CStr(number)
End Sub
Sub DoubleAndSquare(ByRef myVar As Double)
    myVar = myVar + myVar
    myVar = myVar * myVar
End Sub
```

- A) 4
- B) 64
- C) 36
- D) 0

64) Which of the following is not a type of cyber-crime?

- A) Forgery
- B) Data theft
- C) Hacking
- D) Installing antivirus

65) Which of the following is not included in Software External Failure Costs?

- A) Warranty work of the product
- B) Support through help line
- C) Training
- D) Repairing after complaint

66) Which of the following is most appropriate form for an electronic cheque?

- A) E-commerce
- B) Online banking
- C) E-cash
- D) Check

67) Which of the following string handling functions and methods are used to compare two strings?

i) StrComp ii) String.Compare iii) String.Equals iv) String.CompareTo

- A) i, ii and iii only
- B) ii, iii and iv only
- C) i, iii and iv only
- D) i, ii, iii and iv

68) State whether the following is true or false.

- I. A Connection Oriented protocol can only use unicast addresses.
- II. The anycast service is included in IPV6.

- A) True, True
- B) True, False
- C) False, True
- D) False, False

69) For LANs pair up the following IEEE No. to their corresponding Name for IEEE 802 standards.

- | | |
|---------------|--------------|
| I. 802.3 | a. Wifi |
| II. 802.11 | b. WiMa |
| III. 802.15.1 | c. Ethernet |
| IV. 802.16 | d. Bluettoth |

- A) i-b, ii-c, iii-d, iv-a
- B) i-c, ii-d, iii-a, iv-b
- C) i-c, ii-a, iii-d, iv-b
- D) i-b, ii-d, iii-c, iv-a

70) Which of the method is used to move the focus to the specified control or form?

- A) Lostfocus
- B) Gotfocus
- C) Setfocus
- D) Controlfocus

71) In SQL, the CREATE TABLESPACE is used

- A) to create a place in the database for storage of scheme objects, rollback segments, and naming the data files to comprise the tablespace.
- B) to create a database trigger.
- C) to add/rename data files, to change storage
- D) All of the above

- 72) What is the commonly used unit for measuring the speed of data transmission?
- A) Bytes per second
 - B) Baud
 - C) Bits per second
 - D) Both B and C
- 73) Which IP addresses are reserved for multi-casting?
- A) Class B
 - B) Class C
 - C) Class D
 - D) Class E
- 74) Among the following options identify non main component of the Visual Studio IDE.
- A) Start Menu
 - B) Designer Window
 - C) Tool Box
 - D) Solution Explorer
- 75) What type of cyber-crime, its laws and punishments do section 66 of the Indian IT Act holds?
- A) Stealing data from server
 - B) Stealing hardware components
 - C) Accessing computer without prior authorization
 - D) Putting antivirus into the victim

Section II

Short answer type questions (ANY FIVE)

[5x15=75]

1. What are the works of a Database Administrator? List and explain the types of the database system users. What are the query Processor components?
2. Discuss a heuristic estimation technique in the software project development and estimation. How will you execute the risk management in software management?
3. Which network layer is responsible for the routing? Explain the shortest path routing algorithm. Also, discuss the Congestion Control algorithms.
4. Discuss the benefits and challenges of e-commerce. What makes e-commerce successful?

5. What is an OLAP Server? What are its types? List some drawbacks of OLAP. Compare OLAP with OLTP.
6. Discuss the evolution of cellular network standards in broadband communication. What are the future application domains of broadband communication?
7. Compare the OSI with TCP/IP model.
8. Define transaction in DBMS. Explain the ACID properties. Also, explain the transaction states in the DBMS system with a state diagram of a transaction.

Long answer type questions (ANY THREE)

[3x25=75]

9. You are being asked to develop a database software for e-governance. Define an abstract of the software to be developed. In this regard giving the reason list all the entity type, attributes, keys and its cardinality rules of the relationships. Design an ER-diagram of the same software.
10. In which generation does the GSM was developed? How is it different from CDMA? Discuss the GSM network architecture with the framing structure.
11. Define normalization. Is there any similarity between 3NF and BCNF? If so, explain. Explain 1NF, 2NF, 3NF and BCNF with an appropriate example.
12. What is software maintenance? Define the types of software maintenance. Discuss the software maintenance process. Also, discuss the software re-engineering and its advantages.
13. Discuss Project Planning which includes the discussion of SPMP in detail. Also, discuss the metrics for Project Size Estimation and Project Estimation Techniques.
14. Explain Data Mining techniques with examples. Differentiate with the Data Warehousing. Explain the three fundamental components of Data Warehousing architecture. How will someone get the benefit of data available in mass through Data Warehousing and the problems which comes out of it?