



PABSON
SEE PRE BOARD EXAMINATION-2082

Subject: Opt. II Computer Science

Full Marks: 50

Time: 2hrs.

Candidates are required to answer the questions in their own way words as far as practicable. Figures in the margin indicate the full marks.

Attempt all questions.

Group "A"

1. Answer the following questions in one sentence. [6×1=6]

तलका प्रश्नहरूको उत्तर एउटै वाक्यमा दिनुहोस् ।

a) What do you mean by foreign key?

Foreign key भनेको के हो?

b) Define RDBMS?

RDBMS परिभाषित गर्नुहोस् ।

c) Define VR.

VR लाई परिभाषित गर्नुहोस् ।

d) What is Global Variable?

ग्लोबल चर/चल भनेको के हो ?

e) Define digital payment.

डिजिटल भुक्तानीलाई परिभाषित गर्नुहोस् ।

f) Define unary operator used in C-language.

C-language मा प्रयोग हुने unary अपरेटर परिभाषित गर्नुहोस् ।

2. Write appropriate technical term for the following: [2×1=2]

निम्न लिखितका लागि उपयुक्त प्राविधिक शब्द लेख्नुहोस्:

a) A protocol used for receiving emails from one server to another.

एउटा सर्भरबाट अर्को सर्भरमा इमेल प्राप्त गर्न प्रयोग गरिने प्रोटोकल ।

b) First Computer Network System.

पहिलो कम्प्युटर नेटवर्क प्रणाली ।

3. Write the full form of the following:

[2×1=2]

तलका पूरा रूप लेख्नुहोस्:

a) IMAP

b) SIM

Group "B"

4. Answer the following questions:

[9×2=18]

तलका प्रश्नहरूको उत्तर दिनुहोस्:

a) What is computer network topology? Mention any two types of it.

कम्प्युटर नेटवर्क topology के हो ? यसका प्रकारहरू उल्लेख गर्नुहोस् ।

b) What do you mean by cryptography? Why is it important?

क्रिप्टोग्राफी भन्नाले के बुझिन्छ ? यो किन महत्वपूर्ण छ ?

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- c) What is meant by the CIA triad? Define any one of them.
CIA triad को अर्थ के हो ? ती मध्ये कुनै एकको परिभाषा दिनुहोस् ।
- d) Differentiate between computerized and non-computerized databases.
कम्प्यूटरीकृत र गैर-कम्प्यूटरीकृत डाटाबेसहरू बीचको भिन्नता लेख्नुहोस् ।
- e) What is IOT? Enlist two application areas of AI.
IOT भनेको के हो ? AI को दुई अनुप्रयोग क्षेत्रहरू सूचीबद्ध गर्नुहोस् ।
- f) What is software and data security? Enlist any two measures to protect it.
सफ्टवेयर र डेटा सुरक्षा भनेको के हो ? यसलाई सुरक्षित गर्ने कुनै दुई उपायहरू सूचीबद्ध गर्नुहोस् ।
- g) Define report in Ms-Access? Enlist any two uses of the report.
Ms-Access मा रिपोर्टलाई परिभाषित गर्नुहोस् ? रिपोर्टको कुनै दुई प्रयोगहरू सूचीबद्ध गर्नुहोस् ।
- h) What is filtering in the database? Write any two data types used in Ms-Access.
डाटाबेसमा फिल्टरिङ भनेको के हो ? Ms-Access मा प्रयोग हुने कुनै दुई डाटाका प्रकारहरू लेख्नुहोस् ।
- i) Identify validation rule, query, input mask and validation text from the given SQL Query:
दिइएको SQL क्वेरीबाट प्रमाणीकरण नियम, क्वेरी, इनपुट मास्क र प्रमाणीकरण पाठ पहिचान गर्नुहोस्:
- a) SELECT NAME FROM STUD_TABLE WHERE CLASS=9
- b) "sorry," the maximum limit is 5000 a day, try again next day"
- c) >= 6000
- d) (DD-MM-YY)

5. Write the output of the given program. (Workout with a dry-run table) [2]

दिइएको program को आउटपुट लेख्नुहोस् । (Dry-Run टेबलमा देखाउनुहोस् ।

```
DECLARE FUNCTION PR$(A$)
```

```
CLS
```

```
A$="MAKE EASY"
```

```
PRINT PR$(A$)
```

```
END
```

```
FUNCTION PR$(A$)
```

```
FOR K=LEN(A$) TO 1 STEP -3
```

```
  B$=MID$(A$,K,1)+B$
```

```
NEXT K
```

```
PR$=B$
```

END FUNCTION

6. Rewrite the given program after correcting bugs: [2]

तल दिइएको प्रोग्रामलाई सच्याएर पुनः लेख्नुहोस् ।

REM add some records in the data file "info.dat"

OPEN "REC.DAT" FOR OUTPUT AS #2

CLS

TOP:

INPUT"ENTER

NAME,CLASS,SECTION";NAME\$,CLASS,SECTION\$

PRINT #2,NAME\$,CLASS,SECTION\$

INPUT"ADD MORE RECORDS ? YES/NO";CH

IF LCASE(CH\$)="yes" THEN GOTO TOP

CLOSE #2

END

7. Study the following program and answer the given questions: [2]

तलको कार्यक्रम अध्ययन गर्नुहोस् र दिइएका प्रश्नहरूको उत्तर दिनुहोस्:

DECLARE FUNCTION ABC\$(N\$)

CLS

INPUT "ENTER ANY WORD"; W\$

PRINT "THE RESULT STRING IS"; ABC\$(W\$)

END

FUNCTION ABC\$ (N\$)

FOR K=1 TO LEN (N\$)

P\$=MID\$ (N\$,K,1)

R\$=P\$+R\$

NEXT K

SHARED R\$

ABC\$=R\$

END FUNCTION

Questions:

- a) Enlist actual and formal parameters used in the above program.

माथिको program मा प्रयोग गरिएका वास्तविक र औपचारिक प्यारामिटरहरू सूचीबद्ध गर्नुहोस् ।

- b) What is the use of the SHARED keyword in the above program?

माथिको program मा SHARED किबर्डको प्रयोग के हो?

Group "C"

8. Calculate or convert as per the instructions. [4x1=4]

निर्देशन अनुसार गणना वा रूपान्तरण गर्नुहोस् ।

a) $(B2)_{16} = (?)_2$

b) $(241)_{10} = (?)_8$

c) $(10101)_2 + (11)_2 - (1110)_2$

d) $(101011)_2 \div (111)_2$

9. a) Write a program in QBASIC to input a principal amount, rate and time. Create a user defined function to calculate the amount and simple interest using user defined sub procedure.

$$[si = (p * t * r) / 100 \text{ and } amount = (si + p)] \quad [4]$$

QBASIC मा मूलधन रकम, दर र समय इनपुट गर्न एउटा प्रोग्राम लेख्नुहोस् । प्रयोगकर्ता sub procedure प्रयोग गरेर रकम र साधारण ब्याज गणना गर्न function procedure सिर्जना गर्नुहोस् ।

- b) A sequential data file "info.dat" contains the name, address, salary of employees. WAP in QBasic to display the record of those employees whose salary is more than 37000 and whose address begins with "D" or "K". [4]

"info.dat" नामक अनुक्रमिक डेटा फाइलमा कर्मचारीहरूको नाम, ठेगाना, तलब समावेश छ । QBasic मा ३७००० भन्दा बढी तलब भएका र "D" वा "K" बाट सुरु हुने कर्मचारीहरूको रेकर्ड देखाउन एउटा प्रोग्राम लेख्नुहोस् ।

10. a) Write a 'C' program to input a number and check whether it is leap year or not. [4]

संख्या प्रविष्ट गर्न 'C' प्रोग्राम लेख्नुहोस् र यो लिप वर्ष हो कि होइन भनेर जाँच गर्नुहोस् ।

OR

- b) Write a program in 'C' to input a multi digit integer number, calculate and display the reverse of the input number. [4]

बहु-अंकको पूर्णांक संख्या इनपुट गर्न 'C' मा एउटा प्रोग्राम लेख्नुहोस्, गणना गर्नुहोस् र इनपुट संख्याको उल्टो प्रदर्शन गर्नुहोस् ।



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Attempt all questions.

Group 'A'

1. **Answer the following questions in one sentence:** (6×1=6)
 - a) What is guided transmission media?
 - b) List any two application areas of Virtual Reality.
 - c) Which database object is used to store data?
 - d) Which field property in MS Access speeds up searching and sorting of records based on a field?
 - e) Write one difference between sub procedure and function procedure.
 - f) Which escape sequence characters are used for new line and tab in C programming language?

2. **Write appropriate technical term for the following:** (2×1=2)
 - a) A type of network in which every computer works as both client and server.
 - b) A secret word that gives a user access to a particular program or system and protects it from unauthorized users.

3. **Write the full form of the following:** (2×1=2)
 - a) OTP
 - b) SIM

Group 'B'

4. Answer the following questions: (9×2=18)

- a) Define computer network. Write any two disadvantages of computer network.
- b) What is digital citizenship? Write any two elements of digital citizenship.
- c) What are security threats? List any two possible security threats.
- d) Differentiate between E-commerce and traditional commerce.
- e) What is artificial intelligence? List any two examples of AI.
- f) Define data and information with examples.
- g) What is data sorting? Why is primary key necessary in a database table?
- h) Differentiate between field and record.
- i) What is a query in MS Access? Why is update query necessary in a database system?

5. Write down the output of the given program.

(Show with dry run in table).

(2)

```
DECLARE SUB Series ()  
CALL Series  
END
```

```
SUB Series  
A = 4  
B = 6  
FOR ctr = 1 TO 3  
    PRINT A; B;  
    A = A + B  
    B = A + B  
NEXT ctr  
END SUB
```

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(2)

6. Re-write the given program after correcting the bugs:

```
REM To store name, post and salary
OPEN "EMP.DOC" FOR INPUT AS #1
TOP:
INPUT "Enter name"; N$
INPUT "Enter post"; P$
INPUT "Enter salary"; S
WRITE #2, N$, P$, S
PRINT "Want to Continue(Y/N)"; A$
IF UCASE$(A$) = "Y" THEN GOTO TOP
STOP #1
END
```

7. Study the following program and answer the given questions:

(2×1=2)

```
DECLARE FUNCTION rev$(N$)
INPUT "Any string"; N$
PRINT rev$(N$)
END
```

```
FUNCTION rev$(N$)
FOR X = LEN(N$) TO 1 STEP -1
  A$ = MID$(N$, X, 1)
  B$ = B$ + A$
NEXT X
rev$ = B$
END FUNCTION
```

- List any two library functions used in the above program.
- What will be the maximum value of X if N\$ is equal to "Nepal is beautiful" ?

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Group 'C

8. Convert / Calculate as per the instruction: (4×1= 4)
- i) Convert $(FACE)_{16}$ to binary.
 - ii) Convert $(911)_{10}$ to octal.
 - iii) $(11010_2 \times 1011_2) - 10101_2 = (?)_2$
 - iv) $(101010)_2 \div (111)_2 = (?)_2$
9. Answer the following (2×4=8)
- a) Write a program in QBASIC that asks the length and calculates the area and perimeter of a square. Create a user-defined function to calculate the area of the square and a sub program to calculate the perimeter of the square. (*Hint: Area = L^2 , Perimeter = $4L$*)
 - b) Create a sequential data file result.dat to store the name and marks of any three subjects. Also calculate total and percentage. The program should terminate according to the user's choice.
10. Write a C program to display whether the given number is positive, negative or zero.

or

Write a C program to print the following series:

9, 7, 5, ..., 1

