PURBANCHAL UNIVERSITY
2018

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/*Final*

Time: 03:00 hrs. Full Marks: 60 /Pass Marks: 24

BCA374CO: Web Technology *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

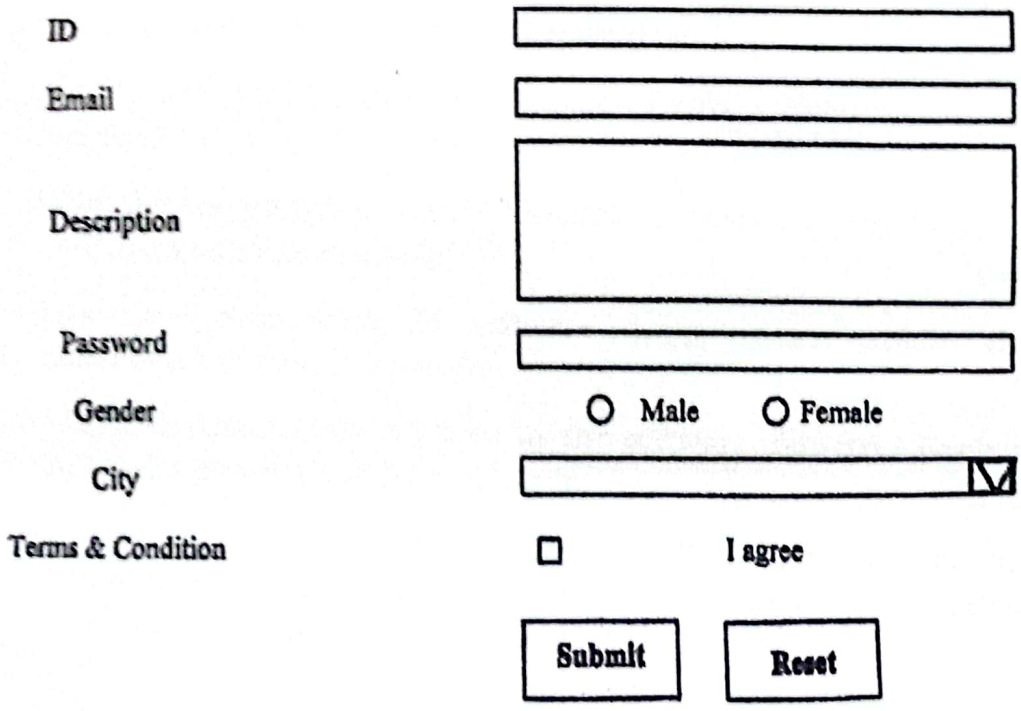
Group A

Answer TWO questions. **2×12=24**

1. What is Tier Technology? Explain the processing of Static and Dynamic Web Page. Differentiate the Open Source Software and Proprietary Software. 4+3+5

2. How can you differentiate HTML, XHTML, and HTML5? Differentiate table-based and table-less design with suitable example. 3+9

3. What are various control structure in PHP? Write HTML code for the following employee registration form and store the client details to the database after performing the required validation. 2+10



10. What is boundary value analysis? In how many ways cyclomatic complexity can be computed? Explain with suitable example. 2+6

11. What are the attributes of software metrics? Explain various metrics for project size estimation. 2+6

12. Write short notes on: 4+4
(a) Agile Development
(b) COCOMO

PURBANCHAL UNIVERSITY

2018

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/*Final*

Time: 03:00 hrs. Full Marks: 80 /Pass Marks: 32

BCA370CO: Software Engineering *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Group A

Answer TWO questions. **2×12=24**

1. Define risk. In how many ways risks can be categorized. Explain the mechanism of risk driven specification in detail. 2+2+8

2. Why software design is important? Explain why it is necessary to design the system architecture before specifications are written. 4+8

3. Define user requirements and system requirements. Explain the process of requirement engineering with suitable diagram. 4+8

Group B

Answer SEVEN questions. **7×8=56**

4. Do you agree with the statement "Software is developed or engineered; it is not manufactured". Justify with your view. Explain the generic view of software engineering? 8

5. Justify the need of test case design. Explain different testing method. 8

6. What are the purposes of DFD? Explain Context diagram levels of DFD with suitable example. 2+6

7. Discuss the principle of software design. Also explain the advantages of modular system. 8

8. Why ISO Certification required by the software industry? Explain SEI CMM process quality standards. 2+6

9. What are the properties of cloud computing? Discuss the importance of ERP and Content management in Nepalese software industries. 4+4

Contd. ...

6. Represent the following data by means of histogram and frequency polygon.

Production in hundred	No. of days
10-15	7
15-20	19
20-25	27
25-30	15
30-35	12
35-40	10
40-45	6

7. What is meant by hypothesis testing? List the procedure of test of significance for single mean with necessary formulae.

8. The mean and variance of binomial distribution are 3 and 2 respectively. Find the probability of (i) less than or equal to 2 (ii) greater than or equal to 7.

9. Suppose X follows the normal distribution with mean 100 and standard deviation 10, find the probability that (i) X is between 100 and 110 (ii) X is more than 120 (iii) X is less than 115.

10. What is estimation? A random sample of 500 units from a large consignment showed that 85 were damaged. Find 95% and, 99% confidence interval for the proportion of damaged units in the consignment.

11. A random sample of size 400 was drawn and the sample mean was found to be 99. Test whether this sample could have come from a normal population with mean 100 and standard deviation 8 at 5% level of significance

PURBANCHAL UNIVERSITY
2018

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/*Final*

Time: 03:00 hrs. Full Marks: 60 /Pass Marks: 24

BCA376SH: Probability & Statistics *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

2×12=24

Answer TWO questions.

1. The prices of shares X and Y are given below, state which share is more stable in value:

X	54	52	56	60	49	48	52	58
Y	105	108	110	120	118	125	104	109

2. The following table gives the age of cars of a certain brand and actual maintenance costs. Obtain the regression equation for costs related to age. Also estimate the maintenance cost for a 9 years old car. Also interpret the regression coefficient obtained above.

Age of car (years)	: 2	4	6	8	10	12
Maintenance cost	: 10	12	18	20	24	45

3. Fit a Poisson distribution for the following data and test the goodness of fit:

x:	0	1	2	3	4	5
f:	120	56	20	12	3	1

Group B

6×6=36

Answer SIX questions.

4. Calculate mode, median and standard deviation, if mean =60, C.V. = 30%, SK_p= -0.35.

5. What do you understand by trial and event? Discuss equally likely, mutually exclusive and exhaustive events with example.

Contd. ...

7. The distance(s) covered by a car in a given time(t) is given in the following table:

Time (minutes)	12	14	16	18	20
Distance(km)	14	18	23	25	34

Find the velocity of a car.

8. Compute $\int_0^1 \frac{dx}{1+x}$ using Simpson's one-third rule by dividing [0,1] into 4 equal parts. Hence obtain the approximate value of ln(2).

9. Using Euler's method, find an approximate value of y corresponding to x=2, given that dy/dx = x+2y and y=1 when x=1.

10. Discuss absolute error, relative error and percentage error with example.

PURBANCHAL UNIVERSITY
2018

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/*Final*

Time: 03:00 hrs. Full Marks: 80 /Pass Marks: 32

BCA371CO: Object Oriented Analysis and Design *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions. **2×12=24**

1. Explain the different phases with diagram of Object Oriented Development Life Cycle (Incremental and Iterative- United Process).
2. What is context diagram and DFD diagram? Draw the class diagram, object diagram and use case diagram for the library information system.
3. What is OOA and OOD. Explain design of objects with pattern in detail. 4+8

Group B

Answer SEVEN questions. **7×8=56**

4. What is CRC. Explain state diagram and interaction diagram modeling.
5. Differentiate between forward engineering and reverse engineering with its applications area.
6. What is UML? Explain extend, generalization and specialization relationship with an example.
7. What is interaction diagram? What are the points should be remembered while drawing interaction diagram?
8. What is modeling? Which aims could be achieved through modeling?
9. What is object? How Is it different from class? Explain the term inheritance and association.
10. How errors are handled in Object Oriented based software development?

Contd. ...

11. Explain Development, component diagram and visibility of class in object oriented design.

12. Write short notes on any TWO:

(a) Cohesion and coupling

(b) System sequence diagram

(c) Structured Vs object oriented based implementation

PURBANCHAL UNIVERSITY

2018

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/*Final*

Time: 03:00 hrs. Full Marks: 60 /Pass Marks: 24

BCA375CO: Computer Graphics *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions. **2×12=24**

1. What are different types of shading model? Explain Gouraud Shading model in detail.
2. Explain Bresenham's mid-point circle algorithm in detail.
3. What are different types of transformation? Explain 2d transformations in detail.

Group B

Answer SIX questions. **6×6=36**

4. Explain the applications of computer graphics in the field of education and animation.
5. What is frame buffer? Explain shadow mask method with figure.
6. Explain and differentiate between Raster and vector display architecture.
7. What is window and viewport? Explain windows to viewport transformation with proper diagram.
8. Explain different types of projection in brief.
9. Discuss Cohen Sutherland line clipping algorithm in brief.
10. What is pivot point scaling? Explain,
11. Write short notes on any TWO:
    (a) Animation
    (b) Mouse
    (c) Graphical file format

Group B

Answer SIX questions. **6×6=36**

4. What are various DDL and DML Commands? Explain the Responsive website design strategies. 2+4

5. What is String manipulation in PHP? Explain any three String manipulation functions in PHP. 1+5

6. What is the role of MVC framework for web application development? What are various MVC framework of PHP? 4+2

7. Explain the role of SESSION and COOKIE in the web applications. 6

8. What are web services? Explain the role of AJAX in the web application development. 2+4

9. What is recursive function in PHP? Write a program to display multiplication table of any input number using PHP. 1+5

10. Write short notes on any TWO: 3+3
    (a) CSS Vs. CSS3
    (b) Login and authentication
    (c) JSON and JQUERY

PURBANCHAL UNIVERSITY

2018

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/*Final*

Time: 03:00 hrs. Full Marks: 80 /Pass Marks: 32

BCA371CO: Object Oriented Analysis and Design *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions. **2×12=24**

1. Explain the different phases with diagram of Object Oriented Development Life Cycle (Incremental and Iterative- United Process).
2. What is context diagram and DFD diagram? Draw the class diagram, object diagram and use case diagram for the library information system.
3. What is OOA and OOD. Explain design of objects with pattern in detail. 4+8

Group B

Answer SEVEN questions. **7×8=56**

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9. What is object? How Is it different from class? Explain the term inheritance and association.
10. How errors are handled in Object Oriented based software development?

Contd. ...

11. Explain Development, component diagram and visibility of class in object oriented design.

12. Write short notes on any TWO:

(a) Cohesion and coupling

(b) System sequence diagram

(c) Structured Vs object oriented based implementation

PURBANCHAL UNIVERSITY

2018

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/*Final*

Time: 03:00 hrs. Full Marks: 60 /Pass Marks: 24

BCA375CO: Computer Graphics *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions. **2×12=24**

1. What are different types of shading model? Explain Gouraud Shading model in detail.
2. Explain Bresenham's mid-point circle algorithm in detail.
3. What are different types of transformation? Explain 2d transformations in detail.

Group B

Answer SIX questions. **6×6=36**

4. Explain the applications of computer graphics in the field of education and animation.
5. What is frame buffer? Explain shadow mask method with figure.
6. Explain and differentiate between Raster and vector display architecture.
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8. Explain different types of projection in brief.
9. Discuss Cohen Sutherland line clipping algorithm in brief.
10. What is pivot point scaling? Explain,
11. Write short notes on any TWO:
    (a) Animation
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    (c) Graphical file format

Group B

Answer SIX questions. **6×6=36**

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8. What are web services? Explain the role of AJAX in the web application development. 2+4

9. What is recursive function in PHP? Write a program to display multiplication table of any input number using PHP. 1+5

10. Write short notes on any TWO: 3+3
    (a) CSS Vs. CSS3
    (b) Login and authentication
    (c) JSON and JQUERY

PURBANCHAL UNIVERSITY
2018

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/*Final*

Time: 03:00 hrs. Full Marks: 60 /Pass Marks: 24

BCA374CO: Web Technology *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

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Group A

Answer TWO questions. **2×12=24**

1. What is Tier Technology? Explain the processing of Static and Dynamic Web Page. Differentiate the Open Source Software and Proprietary Software. 4+3+5

2. How can you differentiate HTML, XHTML, and HTML5? Differentiate table-based and table-less design with suitable example. 3+9

3. What are various control structure in PHP? Write HTML code for the following employee registration form and store the client details to the database after performing the required validation. 2+10

ID	
Email	
Description	
Password	
Gender	○ Male ○ Female
City	
Terms & Condition	☐ I agree

Submit Reset

10. What is boundary value analysis? In how many ways cyclomatic complexity can be computed? Explain with suitable example. 2+6

11. What are the attributes of software metrics? Explain various metrics for project size estimation. 2+6

12. Write short notes on: 4+4
(a) Agile Development
(b) COCOMO

PURBANCHAL UNIVERSITY
2018

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/*Final*

Time: 03:00 hrs. Full Marks: 80 /Pass Marks: 32

BCA370CO: Software Engineering *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Group A

Answer TWO questions. **2×12=24**

1. Define risk. In how many ways risks can he categorized. Explain the mechanism of risk-driven specification in detail. 2+2+8

2. Why software design is important? Explain why it is necessary to design the system architecture before specifications are written. 4+8

3. Define user requirements and system requirements. Explain the process of requirement engineering with suitable diagram. 4+8

Group B

Answer SEVEN questions. **7×8=56**

4. Do you agree with the statement "Software is developed or engineered; it is not manufactured". Justify with your view. Explain the generic view of software engineering? 8

5. Justify the need of test case design. Explain different testing method. 8

6. What are the purposes of DFD? Explain Context diagram levels of DFD with suitable example. 2+6

7. Discuss the principle of software design. Also explain the advantages of modular system. 8

8. Why ISO Certification required by the software industry? Explain SEI CMM process quality standards. 2+6

9. What are the properties of cloud computing? Discuss the importance of ERP and Content management in Nepalese software industries. 4+4

Contd. ...

6. Represent the following data by means of histogram and frequency polygon.

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8. The mean and variance of binomial distribution are 3 and 2 respectively. Find the probability of (i) less than or equal to 2 (ii) greater than or equal to 7.

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10. What is estimation? A random sample of 500 units from a large consignment showed that 85 were damaged. Find 95% and, 99% confidence interval for the proportion of damaged units in the consignment.

11. A random sample of size 400 was drawn and the sample mean was found to be 99. Test whether this sample could have come from a normal population with mean 100 and standard deviation 8 at 5% level of significance

PURBANCHAL UNIVERSITY

2018

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/*Final*

Time: 03:00 hrs. Full Marks: 60 /Pass Marks: 24

BCA376SH: Probability & Statistics *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions. **2×12=24**

1. The prices of shares X and Y are given below, state which share is more stable in value:

X	54	52	56	60	49	48	52	58
Y	105	108	110	120	118	125	104	109

2. The following table gives the age of cars of a certain brand and actual maintenance costs. Obtain the regression equation for costs related to age. Also estimate the maintenance cost for a 9 years old car. Also interpret the regression coefficient obtained above.

Age of car (years) :	2	4	6	8	10	12
Maintenance cost :	10	12	18	20	24	45

3. Fit a Poisson distribution for the following data and test the goodness of fit:

x:	0	1	2	3	4	5
f:	120	56	20	12	3	1

Group B

Answer SIX questions. **6×6=36**

4. Calculate mode, median and standard deviation, if mean =60, C.V. = 30%, SK_p= -0.35.

5. What do you understand by trial and event? Discuss equally likely, mutually exclusive and exhaustive events with example.

Contd. ...

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Distance(km)	14	18	23	25	34

Find the velocity of a car.

8. Compute $\int_0^1 \frac{dx}{1+x}$ using Simpson's one-third rule by dividing [0,1] into 4 equal parts. Hence obtain the approximate value of ln(2).

9. Using Euler's method, find an approximate value of y corresponding to x=2, given that $dy/dx = x+2y$ and y=1 when x=1.

10. Discuss absolute error, relative error and percentage error with example.

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PURBANCHAL UNIVERSITY
2021

Bachelor in Information Technology (B.I.T.)/Eighth Semester/*Final*
Time: 03:00 hrs. Full Marks: 80 /Pass Marks: 32
BIT471CO: Wireless Communication System *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions. **2×12=24**

1. Explain in detail about the cellular call process between landline and mobile.
2. Write about channels and frequencies used in CDMA system. With neat block diagram explain forward CDMA system.
3. Give concepts behind diversity techniques. What are spatial diversity techniques? Explain each of them with neat diagram.

Group B

Answer SEVEN questions. **7×8=56**

4. Explain in brief about paging system.
5. Discuss various types of interferences encountered in cellular system. Also explain the methods to minimize them.
6. With the help of a block diagram explain how, GMSK (signal is transmitted.
7. Point out characteristics of speech signals. Explain about sub-band coding.
8. Explain about PCS extension to Hata outdoor propagation model.
9. Compare FDD & TDD. Explain the specific features of TDMA.
10. Explain about features and specifications GSM system.
11. Write short notes on any TWO: 2×4=8
    (a) 4G Concept
    (b) Recent development in GSM technology
    (c) Cell Sectoring