(Please write your Exam Roll No.) *Exam Roll No. .....*

END TERM EXAMINATION

FIFTH SEMESTER [BCA] DECEMBER - 2019

Paper Code: BCA301 ***Subject: Operating System***

Time: 3 Hours ***Maximum Marks: 75***

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each unit.

Q1 Answer the following (**Any Five**):- **(5x5=25)**

a) Explain the role of Operating System. Give example of each type of Operating System.
b) What is Thrashing? Mention possible solutions for this problem.
c) Explain Process State Transition with the help of diagram.
d) Explain the use of Access Matrix in System protection.
e) Explain Disk Reliability.
f) Explain processor affinity in context to multiple processor system.

UNIT I

Q2 (a) Explain Continuous and Non-Continuous Memory Allocation with diagram. **(6)**

(b) Consider the following page reference string: **7,2,3,1,2,5,3,4,6,7,1,0** Assuming demand paging with four frames, how many page faults would occur for the following replacement algorithms? **(6.5)**

i) LRU replacement
ii) FIFO replacement
iii) Optimal replacement

Q3 (a) Explain various types of fragmentation and memory allocation strategies. **(6)**

(b) Explain segmentation in memory management. With a neat diagram explain hardware required to implement segmentation. **(6.5)**

UNIT II

Q4 (a) Explain how reader-writer problem can be solved using semaphore with the help of pseudocode. **(6)**

(b) Consider the following five process, with the length of the CPU burst time given in milliseconds. **(6.5)**

Process	Arrival Time	Burst Time
P1	0	8
P2	1	4
P3	2	9
P4	4	5
P5	4	3

(i) Draw five Gantt charts that illustrate the execution of these process using the following scheduling algorithms: FCFS, SJF, Pre-emptive SJF (SRTN), RR (quantum=2).

(ii) What is average turnaround time and average waiting time for each of the scheduling algorithm in part (i).

[P.T.O]

BCA-301
P1|P2

Q5 (a) Explain three different types of scheduler in operating system with the help of neat diagram. Explain specific role of each type of scheduler. **(10)**

(b) Explain how producer consumer problem can be solved using semaphore with help of pseudocode. **(2.5)**

UNIT III

Q6 (a) Explain deadlock and four necessary condition for its occurrence. Explain how deadlock can be prevented. **(6)**

(b) Consider the following snapshot of a system at time T_0. **(6.5)**

	Allocation			Max			Available		
	A	B	C	A	B	C	A	B	C
P_0	0	1	0	7	5	3	3	3	2
P_1	2	0	0	3	2	2			
P_2	3	0	2	9	0	2			
P_3	2	1	1	2	2	2			
P_4	0	0	2	4	3	3			

Answer the following questions using the banker's algorithm:

(i) What is the content of the matrix ***Need***?

(ii) Is the system in a safe state? If yes, mention the safe sequence?

(iii) If the request from process P1 arrives for (1,1,2) can the request be granted immediately?

Q7 (a) Explain swap-space management task of the operating system and explain the concept of raw partition. **(6)**

(b) Suppose that a disk drive has 300 cylinders, numbered 0 to 299. The drive is currently serving a request at cylinder 150. The queue of pending requests, in FIFO order, is:

69,12, 196, 202, 144, 218, 256, 123, 165, 81.

Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk scheduling algorithm? **(6.5)**

(i) FCFS

(ii) SSTF

(iii) SCAN

(iv) LOOK

UNIT IV

Q8 (a) Explain layered design of the file system with diagram. **(6)**

(b) Explain various types of Program threats and System threats. **(6.5)**

Q9 (a) Explain three methods of allocating disk space: contiguous, linked, and indexed. **(6)**

(b) Explain different file access methods with diagram. **(6.5)**

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P2|P1

(Please write your Exam Roll No.) *Exam Roll No. .....*

END TERM EXAMINATION

FIFTH SEMESTER [BCA] DEC. - 2019

Paper Code: BCA 303 ***Subject: Computer Graphics***

Time: 3 Hours ***Maximum Marks: 75***

Note: Attempt five questions in all including Q. No. 1 which is compulsory. Select one question from each unit.

Q1 Answer the following questions:- **(5x5=25)**

a) What steps are required to scan convert a circle using Bresenham's algorithm?
b) Briefly explain the functions of Random scan display processor.
c) Explain matrix representation for 2-D transformations.
d) Write short notes on:
   i) Polygon Mesh
   ii) Constructive Solid Geometry
e) Explain the following:
   i) Vanishing point
   ii) Cavalier projection

UNIT I

Q2 a) Discuss the advantages of interactive graphics. Briefly explain conceptual framework for interactive graphics. **(7.5)**
b) Differentiate between Random scan and Raster Scan System. **(5)**

Q3 a) Indicate which raster location would be choosen by Bresenham's algorithm when scan converting a line from screen co-ordinates (1,1) to screen co-ordinates (8,5). **(7.5)**
b) Discuss the side effects of scan conversion. **(5)**

UNIT II

Q4 a) Magnify the triangle with verticles A (0,0), B(1,1) and C(5,2) to twice its size while keeping C (5,2) fixed . **(7.5)**
b) What do you mean by shearing? Explain with the help of matrix. **(5)**

Q5 a) Derive the transformation that rotates an object point θ^0 about the origin. **(7.5)**
(i) Find the matrix representation for rotation of an object by 30^0 about origin.
(ii) What are the new co-ordinates of the point P (2, -4) after the rotation.
b) Explain window to view-port transformation. **(5)**

UNIT III

Q6 a) Find the geometric matrix, basis matrix and blending function for parametric cubic curves (Hermite curve). **(7.5)**
b) What do you mean by Geometric continuity? How it is different from parametric continuity? **(5)**

P1/P2
BCA-303

P.T.O.

Q7 a) How solids should be represented in Computer Graphics? Give a comparative analysis of all the representations? **(7.5)**

b) Explain the following:

(i) Sweep Representation (ii) Primitive Instancing **(5)**

UNIT IV

Q8 a) Briefly explain z-buffer method for hidden surface removal with example. **(7.5)**

b) How perspective projection is different from parallel projection? **(5)**

Q9 a) Explain depth sorting method of hidden surface removal. **(7.5)**

b) Differentiate between orthographic and oblique projections? **(5)**

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P2/P2
BCA-303

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END TERM EXAMINATION

FIFTH SEMESTER [BCA] DEC. - 2019

Paper Code: BCA-305 ***Subject: E-Commerce***

Time: 3 Hours ***Maximum Marks: 75***

Note: Attempt any five questions including Q. No. which 1 is compulsory. Attempt one question from each unit.

Q1 Write short notes on any ten of the following:- **(2.5x10=25)**

i) E-Commerce v/s E-Business
ii) Built to Order Model of Supply Chain.
iii) Types of Security Attacks.
iv) SSL.
v) Payment Gateway.
vi) Vertical v/s Horizontal Portals
vii) Notifications in EDI
viii) VPN
ix) UNEDIFACT Standard
x) 128 bit IP Addressing Issue
xi) Web Traffic Analysis

UNIT I

Q2. a) Explain in detail the layered architecture of EDI. **(6)**

b) Define E-Commerce. With the help of suitable examples explain briefly various types of E-Commerce that exists. **(6.5)**

Q3.a) Draw and explain the various types of Generic Trade Cycle. **(6)**

b) How a Traditional Commerce different from E-Commerce? Also state the advantage of using E-Commerce. **(6.5)**

UNIT II

Q4.a) Discuss the various security issues existing on Internet. **(6)**

b) Explain in detail the various types of Electronic Payment Systems. **(6.5)**

Q5.a) How is Intranet different from Extranet. Explain in detail. **(6)**

b) Write short note on Digital Signatures. **(6.5)**

UNIT III

Q6.a) Draw and explain Porter's Value Chain Model. **(6)**

b) What do we understand by Business Process Management? **(6.5)**

Q7.a) Explain the Porter's Five Forces Model. **(6)**

b) Define Supply Chain Management. Discuss the various models of supply chain management. **(6.5)**

UNIT IV

Q8. a) E-Commerce can be real helpful in enhancing business and customer satisfaction. Explain by taking example of Banking Sector. **(6)**

b) What do we understand by the term Cyber Crime? Explain with the help of an example. **(6.5)**

Q9. a) Discuss the major provisions contained in the IT Act 2000. **(6)**

b) Enlist the various legal issues arising in E-Commerce. **(6.5)**

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END TERM EXAMINATION

FIFTH SEMESTER [BCA] NOV.-DEC. - 2019

Paper Code: BCA307 ***Subject: Software Testing***

Time: 3 Hours ***Maximum Marks: 75***

Note: Q. No. 1 is compulsory. Attempt one question from each unit.

Q1 Attempt any five of the following:- **(5x5=25)**

a) What is exact definition of Software Testing? Explain some failures of Software testing.

b) Define the following terms: Error, Fault, Failure, Test case and Test suite with examples.

c) Why developers are not good Testers? Justify with reasons.

d) Explain the V-shaped software life cycle model of testing.

e) What is slice-based testing? Give guidelines of slicing.

f) Differentiate debugging and testing.

g) Explain GUI Testing.

SECTION I

Q2. a) Differentiate White Box and Black box testing. **(7)**

b) What are the limitations of software testing? Why it is so hard? **(5.5)**

Q3.a) Explain Principles of Software Testing in detail. **(7)**

b) Differentiate pear-review, code inspections and walk through. **(5.5)**

SECTION II

Q4. Consider a program for classification of triangle. Its input is a triple of positive integers (a,b,c) from interval [1,100]. The output may be one of the following [Scalene, Isosceles, Equilateral, Not a triangle, invalid input]. Give DD path and Find all du-paths, identify those du-paths that are definition clear (dc). **(12.5)**

Q5. a) What is Cyclomatic Complexity? Give three different ways to compute it with example. **(5.5)**

b) What is Cause-Effect Graphing Technique? Explain it with Example. **(7)**

SECTION III

Q6.a) Explain various levels of testing? Explain system testing in details. **(8)**

b) What is regression testing? When & how it is performed. **(4.5)**

Q7.a) What is debugging? Explain various debugging approaches of software Testing. **(8)**

b) Differentiate Alpha and beta testing. **(4.5)**

SECTION IV

Q8. What is object oriented testing? Give various techniques. Explain Class testing also. **(12.5)**

Q9. Explain in detail the various challenges and strategies involved in web based testing in Internet applications. **(12.5)**

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END TERM EXAMINATION

FIFTH SEMESTER [BCA] NOV.-DEC. - 2019

Paper Code: BCA313 **Subject: Web Based Programming**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt any five questions including Q. No. 1 is compulsory. Select one question from each unit.

Q1 Attempt **any ten** of the following:- **(10x2.5=25)**

a) Differentiate between IIS and PWS.
b) What is PHP's configuration file called? What is the latest version of PHP?
c) What is type juggling?
d) Differentiate between Local and Remote servers.
e) Differentiate between printf, echo and print statement in PHP.
f) Show with example how a variable is passed by reference through function.
g) What are the common ways to start and finish the PHP script?
h) What is a Querystring? Explain using example.
i) How can you find the position of string 'at' in the word 'matter'? Demonstrate.
j) Which method is used to print error if the database connectivity is not established?
k) What is the difference between fetch_array() and fetch_object()?
l) What does the PHP error 'Parse error in PHP-unexpected T_variable at line x' means?

UNIT I

Q2. a) Differentiate between client-side scripting and server-side scripting languages. **(6)**
b) Differentiate between LAMP, MAMP, WAMP and XAMPP. **(6.5)**

Q3.a) How is web application different from web services? **(6)**
b) Create a web page for registration of new user on the online departmental store using dynamic web development tools. **(6.5)**

UNIT II

Q4.a) Explain the data types supported by PHP. What is the difference between $a and $$a? **(6)**
b) Explain briefly the nomenclature of defining variables, constants, array and objects in PHP. What is the difference between for and for each loop? **(6.5)**

Q5. a) Illustrate various types of arrays in PHP using examples. Write at least five inbuilt function that support the use of arrays. **(6)**
b) How is the scope of variables that are declared in function or outside the functions administered by PHP? Also, explain any five super global variables with examples. **(6.5)**

UNIT III

Q6. a) Define cookes and its types. Explain the usage and significance of a cookie? What are the limitations or disadvantages of a cookie. **(6)**

[P.T.O.]

b) Create a form that accepts a user's name, age and E-mail. Perform appropriate validations on the input data. Create a script that saves this data to a file. **(6.5)**

Q7.a) Explain the following using examples: **(6)**
(i) htmlspecialchars() (ii) substr() (iii) <?=.....?>
(iv) != (v) unset() (vi) count()
b) Write the significance of creating a session? Where and when should a session be started? Demonstrate the process of adding variables to $_SESSION. **(6.5)**

UNIT IV

Q8. a) What is the difference between procedural and object oriented MySQLi? Illustrate. **(6)**
b) Write the program to display all records from the table 'Student' under the database 'Admin'. **(6.5)**

Q9. a) In how many ways can we insert the data from form to MySQL? Illustrate using examples. **(6)**
b) Explain different types of errors in PHP? Also, what methods are available to handle the errors? **(6.5)**

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(Please write your Exam Roll No.) *Exam Roll No. .....*

END TERM EXAMINATION

FIFTH SEMESTER [BCA] DEC.-2019

Paper Code: BCA315 ***Subject: Business Economics***

Time: 3 Hours ***Maximum Marks: 75***

Note: Attempt any five questions including Q. No. 1 is compulsory. Attempt one question from each unit.

Q1 Write short notes on ***any five*** of the following:- **(5x5=25)**

a) G-20
b) Outsourcing
c) GDP and GNP
d) Types of Inflation
e) Economies and Diseconomies of Scale
f) Objectives of Fiscal Policy
g) Issues of Dumping

UNIT I

Q2. Define elasticity of demand. What are the types of elasticity of demand? Also discuss the factors affecting elasticity of demand? **(12.5)**

OR

Q3. Explain the Law of Variable Proportion and Law of Returns of Scale **(12.5)**

UNIT II

Q4. What is perfect competitive market? How is it different from monopolistic competitive market in terms of assumptions, revenues and cost curves? **(12.5)**

OR

Q5. Discuss oligopoly market structure? What are its unique features as compared to other forms of market structure in terms of assumptions and revenues? **(12.5)**

UNIT III

Q6. Define Unemployment. What are the causes of unemployment and the solutions to unemployment? **(12.5)**

OR

Q7. Discuss the various methods of measuring National Income. What difficulties are faced while measuring National Income? **(12.5)**

UNIT IV

Q8. Discuss the trends associated with globalization. Do you think globalization benefited India's economy? Justify your answer. **(12.5)**

OR

Q9. Explain the role of WTO in developing Indian economy. Also discuss its structure and functions in brief. **(12.5)**

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