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END TERM EXAMINATION

FIFTH SEMESTER [BCA] NOVEMBER-DECEMBER 2017

Paper Code: BCA-301 ***Subject: Operating System***

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

Note: Attempt all questions as directed. Internal choice is indicated.

Q1 Attempt **any five**: **(5x5=25)**

(a) What is Belady's Anomaly?
(b) List the necessary conditions for a deadlock to occur.
(c) Discuss the structure of Process Control Block (PCB) and explain the utility of each variable.
(d) Briefly explain how starvation is avoided in the operating system.
(e) Explain the concept of Thrashing. When it occurs?
(f) Why do some systems keep track of the type of a file, while others leave it to the user and others simply do not implement multiples file type? Which system is "better"?

Unit-I

Q2 (a) Consider the following set of processes with length of CPU burst times (given in milliseconds) and arrival time as specified:

Process	Arrival Time	Burst Time
P1	0	7
P2	1	4
P3	2	8
P4	3	5

Draw Gantt chart illustrating the execution of these processes using preemptive SJF scheduling algorithm. Also calculate the average waiting time. **(5)**

(b) What is dining philosopher problem? Explain monitor solution to dining philosopher problem. **(7.5)**

OR

Q3 (a) What is semaphore? Describe how semaphore can be used for block wake up synchronization between processes. **(5)**

(b) Consider the following snapshot of the system: **(7.5)**

Allocation				
P-id	**A**	**B**	**C**	**D**
P0	0	0	1	2
P1	1	0	0	0
P2	1	3	5	4
P3	0	6	3	2
P4	0	0	1	4

Max				
P-id	**A**	**B**	**C**	**D**
P0	0	0	1	2
P1	1	7	5	0
P2	2	3	5	6
P3	0	6	5	2
P4	0	6	5	6

Available			
A	**B**	**C**	**D**
1	5	2	0

Answer the following question using the ***Banker's Algorithm***:

(i) Derive the ***Need*** Matrix.
(ii) Is the system in a safe state?

P.T.O.

(iii)A request from process P1 arrives for (0, 4, 2, 0), can this request be granted immediately or not?

Unit-II

Q4 (a) What is Critical-Section problem? What are the requirements that critical-section problem must satisfy for its solution? **(5)**

(b) Describe the need for Device management. Explain techniques used for managing and allocating devices. **(7.5)**

OR

Q5 (a) What is an operating system? Discuss the main services of operating system and also discuss the purpose of system calls in operating system. **(5)**

(b) What is the goal of multiprogramming? Differentiate between a time sharing system and real time system. **(7.5)**

Unit-III

Q6 (a) Differentiate between Paging and Segmentation. Discuss the concept of Paging in detail with the help of the suitable diagram. **(5)**

(b) Given the memory partitions of 100K, 500K, 200K, 300K & 600K (in order). Explain the working of Best fit, First fit & Worst fit algorithms for the processes of size 220 K, 410K, 115K & 430K. Which is the most efficient algorithm? **(7.5)**

OR

Q7 (a) What are multiprocessor systems? List their advantages and explain different types of multiprocessor systems. **(5)**

(b) Discuss various types of disk Scheduling techniques. **(7.5)**

Unit-IV

Q8 (a) Discuss Resource Allocation Graph Algorithm in detail. **(3.5)**

(b) Write short notes on the following **(Any Three):** **(3x3=9)**

(i) Virtual Memory
(ii) Threats to System Security
(iii)Role of Operating System
(iv) Swapping

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END TERM EXAMINATION

FIFTH SEMESTER [BCA] NOVEMBER-DECEMBER 2017

Paper Code: BCA-303	*Subject: Computer Graphics*
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 **any ten** questions of the following: **(2.5x10=25)**

(a) Draw the architecture of a simple raster graphics system?
(b) Give three differences between parallel and perspective projections.
(c) Define the terms persistence and aspect ratio.
(d) List three properties of B spline curve?
(e) How much time is spent scanning across each row of pixels during screen refresh on a raster system with resolution of 1280x1024 and a refresh rate of 60 frames per second?
(f) What is significance of homogeneous coordinate system in graphics?
(g) List advantages and disadvantages of DDA algorithm for line drawing.
(h) Consider a raster system with resolution of 1280x1024. How many pixels could be accessed per second in the system by a display controller that refreshes the screen at a rate of 60 frames per second? What is the access time per pixel?
(i) What is Anti-Aliasing?
(j) Give the transformation matrices for 3D rotation.
(k) List three properties of a B-Spline curve.

Unit-I

Q2 (a) Derive condition for scan converting a circle using Bresenham's circle drawing algorithm. Draw an octant of a circle of radius 8 and centered at origin giving all steps. **(7.5)**

(b) List and explain the applications of interactive computer graphics. **(5)**

Q3 (a) Given a clipping window A(20, 20) B(60, 20) C(60, 40) D(20, 40). Using Cohen Sutherland algorithm find the visible portion of line segment joining the point P(40, 80) Q(120, 30)? **(6.5)**

(b) Discuss about midpoint subdivision algorithm. **(6)**

Unit-II

Q4 (a) Consider the square (0,0), (2,0), (2,0), (2,2). Perform a composite transformation of the square by using the following steps. (Give the coordinates of the square at each of the intermediate steps).

(i) Scale by using $S_x = 2$ and $S_y = 3$.
(ii) Rotate 45^0 in the anticlockwise direction.
(iii)Translate by using $T_X = 3$ and $T_y = 5$. **(6.5)**

(b) Derive the transformation matrix for reflection of a point about an arbitrary line y = mx+c. **(6)**

P.T.O.

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P1/2

Q5 (a) A polygon is describe by A(40, 70), B (60, 40), C(40, 10), D(20, 40) & A (40, 70). It is desired to scale up the polygon to double of the size but located at the same position. Indicate the necessary transformation to carry out the task and find the transformed coordinates of the polygon. **(6.5)**

(b) Suppose there is a rectangle ABCD whose co-ordinates are A(1,1), B(4,1), C(4,4), D(1,4) and the window co-ordinates are (2,2), (5,2), (5,5), (2,5) and the given viewport location is (0.5, 0) (1, 0.5), (0.5, 0.5). Calculate the viewing transformation matrix? **(6)**

Unit-III

Q6 (a) Construct enough points on the Bezier curve whose control points are $P_0(4,2)$, $P_1(8,8)$ and $P_2(16,4)$ to draw an accurate sketch. What is the degree of the curve? What are the coordinates at v = 0.5? **(7.5)**

(b) Explain Boundary representations with examples. **(5)**

Q7 (a) Write in detail on CSG methods and how CSG operations are implemented using ray casting methods. **(6.5)**

(b) List all the properties of the Bezier curve. Prove one property of the curve. **(6)**

Unit-IV

Q8 (a) Define principal vanishing point. Discuss types of perspective projections. **(6.5)**

(b) Explain the Depth sorting Algorithm for Hidden Surface Removal. **(6)**

Q9 (a) Find the transformation for Cavalier projection with $\theta = 45^0$. Find the projection of a unit cube using the Cavalier transformation. **(7.5)**

(b) Describe the three dimensional Cohen-Sutherland clipping algorithm. **(5)**

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

END TERM EXAMINATION

FIFTH SEMESTER [BCA] NOVEMBER - DECEMBER 2017

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

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

(a) E-Business
(b) Notifications in EDI
(c) Digital wallet
(d) Push, Pull Model of Supply Chain
(e) Trade cycle
(f) SEO
(g) SET Protocol
(h) Vertical and horizontal portals
(i) Security in E-commerce
(j) UN-EDIF ACT standard
(k) Intellectual property protection

UNIT-I

Q2 (a) What do we understand by the term E-commerce? State the reasons for shifting from traditional commerce to e-commerce. **(6.5)**

(b) What do we understand by the term Electronic Data Interchange? Give its layered architecture. **(6)**

Q3 Explain various types of E-commerce with examples. **(12.5)**

UNIT-II

Q4 (a) What are the various modes of electronic payments? **(6)**

(b) Distinguish between Symmetric and Asymmetric cryptography. **(6.5)**

Q5 (a) How Intranets are different from Extranets. Explain with the help of suitable examples. **(6.5)**

(b) Write short note on Digital Signatures. **(6)**

UNIT-III

Q6 (a) Compare the supply chain management of tourism company selling tourism packages with the e-commerce company selling online packages. **(6.5)**

(b) Discus the various call centre operations. **(6)**

Q7 (a) Briefly explain Porter's Value chain Model. **(6.5)**

(b) How customer relationship can be managed for e-commerce websites? **(6)**

UNIT-IV

Q8 (a) Discuss the various legal issues existing in e-commerce. **(6.5)**

(b) Discuss the 128 bit IP addressing issue. **(6)**

Q9 (a) What do we understand by the term Cyber Crime? Explain with the help of examples. **(6)**

(b) How E-commerce is helping in achieving customer satisfaction. Explain by taking example of Airline reservation system. **(6.5)**

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END TERM EXAMINATION

FIFTH SEMESTER [BCA] NOVEMBER-DECEMBER 2017

Paper Code: BCA-307 ***Subject: Software Testing***

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

(a) What is Software Testing? Is it possible to do complete testing.
(b) Explain error, fault and failure.
(c) What are Test cases? Elaborate with an example.
(d) What are the limitations of testing?
(e) Explain the difference between alpha and beta testing.
(f) Differentiate between black box and white box testing.

Unit-I

Q2 What is graph theory? How is it useful in testing? Explain in detail with suitable examples. **(12.5)**

Q3 (a) What are the essential of software testing? Why software testing is hard? **(6.5)**
(b) What are the various principles of software testing? **(6)**

Unit-II

Q4 Consider a program for classification of a triangle. Its input in a triple of positive integers (say a, b, c) form interval [1,100]. The output may be one of the following: [Scalene, Isosceles, Equilateral, Not a triangle, invalid inputs]. Find all du-paths identity those du-paths that are definition clear. **(12.5)**

Q5 (a) Discuss cause effect graphing technique with an example. **(6.5)**
(b) What is cyclomatic complexity? Explain with the help of an example. **(6)**

Unit-III

Q6 Define Regression testing. Is it necessary to perform? How various regression testing techniques differ from each other? Explain in detail all the variants of regression testing techniques. **(12.5)**

Q7 (a) What are the various levels of testing? Elaborate with suitable example. **(6.5)**
(b) What is debugging? Explain the debugging cycle and its role in testing process. **(6)**

Unit-IV

Q8 What is object-oriented testing? How is it different from simple testing and GUI testing? Explain various issues involved it with examples. **(12.5)**

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

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END TERM EXAMINATION

FIFTH SEMESTER [BCA] NOVEMBER - DECEMBER 2017

Paper Code: BCA-311	*Subject: Advanced Computer Networks*
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 Attempt **any five** of the following: **(5x5=25)**

(a) What is Inter-domain Routing? Explain.
(b) Explain Sliding Window and H.323.
(c) Differentiate Synchronous and Asynchronous Protocols.
(d) List differences between ATM and Frame Relay.
(e) Handshaking techniques in TCP.
(f) What is PGP? Explain its characteristics.

Unit-I

Q2 (a) Explain Framing in Byte and Bit oriented protocols. Also explain framing errors. **(6.5)**

(b) Explain NRZ, NRZI and Manchester encoding. Also show the NRZ, NRZI and Manchester encoding for the following bit pattern: **(6)**
1100010111001101.

Q3 (a) What is Routing? Explain different type of routing algorithms. **(6.5)**

(b) What are different Error detection approaches? Explain. **(6)**

Unit-II

Q4 (a) Explain Routing among mobile devices in details. **(6)**

(b) Explain RCP, and RTP with the help of example. **(6.5)**

Q5 (a) Explain Multi Protocol Label Switching and Remote Procedure Call. **(6.5)**

(b) Explain tunneling, fragmentation and Reliable Byte Stream (TCP) in detail. **(6)**

Unit-III

Q6 (a) Explain RTSP, RTCP, SIP in detail. **(6)**

(b) What is Congestion and Resource Allocation? Explain Congestion Control and Congestion Avoidance Mechanism in detail. **(6.5)**

Q7 (a) Explain Quality of Service in detail. Explain all the techniques for achieving good quality of service. **(6.5)**

(b) Define Flow Control. Explain sliding window protocol with suitable example. **(6)**

Unit-IV

Q8 (a) How security can be implemented over Internet using TLS and SSL? **(6.5)**

(b) What are the different types of Firewalls? What are the strengths and weakness of firewalls? **(6)**

Q9 (a) What is intrusion detection? Explain measures used for intrusion detection. **(6.5)**

(b) Explain Authentication Protocols in detail. **(6)**

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

END TERM EXAMINATION

FIFTH SEMESTER [BCA] NOVEMBER - DECEMBER 2017

Paper Code: BCA-313 ***Subject: Web Based Programming (PHP)***

(2011 onwards)

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 Do the following:- **(10x2.5=25)**

(a) What is session, how session is created and destroyed.
(b) What is printf function and difference between echo and print statement in PHP?
(c) What is query string? Give example in PHP.
(d) Differentiate between static and dynamic web page.
(e) What is garbage collection and type juggle in PHP?
(f) What are the different types of errors in PHP?
(g) How can we get the properties (size, type, width, height) of an image using PHP image function?
(h) Explain PHP split() function.
(i) How can you send email in PHP?
(j) How can you submit a form without a submit button?

UNIT-I

Q2 (a) PHP being an open source is there any support available to it? How the web server interprets PHP and interacts with the salient. **(6)**

(b) Write down the steps for installation of Apache, IIS and PWS in windows Operating System. **(3.5)**

(c) PHP and Java Script are both programming languages that generate dynamic results for web pages. What is the main difference and why would you use both of them. **(3)**

OR

Q3 (a) What is web server? Differentiate between local and remote server. **(4)**

(b) What is the difference between WAMP, MAMP and LAMP? **(3.5)**

(c) What is web application? Differentiate between client side scripting and server side scripting. **(5)**

UNIT-II

Q4 (a) What is 'for each' and 'each' in PHP? Write a PHP program for passing by value and passing by reference? **(4)**

(b) Differentiate numeric and associative array with example. Write a PHP script to create a multidimensional array. **(4.5)**

(c) What is the scope of variable? List and explain all scope of variable and super Globes variable in PHP with example. **(4)**

OR

Q5 (a) Define constants in PHP with example. What are implicit casting and explicit casting in PHP? **(4)**

(b) What is PHP? Explain data type and variables in PHP. What is difference between $msg and $$msg? **(4.5)**

(c) What are the different types of errors in PHP? **(4)**

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UNIT-III

Q6 (a) What is HTTP application state? **(2.5)**

(b) What are cookies? How can you create, access and delete a cookie in PHP with the as help of example. **(5)**

(c) What is file handling in PHP? Write a PHP script to upload a file. **(5)**

OR

Q7 (a) Write a PHP script to open, close, read and writes into a file. **(4.5)**

(b) Explain some of the PHP array functions? **(4)**

(c) Explain some of the PHP string functions? **(4)**

UNIT-IV

Q8 (a) How can we increase execution time of a PHP script? **(3)**

(b) Write a PHP script to create a database Department and create Employee table with in the database with field i.e. employee-id, employee-name, and employee-age. Insert maximum two records and select all records of employee table. **(5)**

(c) Write a PHP script to insert records of employee table through Form and display records in table format. **(4.5)**

OR

Q9 (a) In how many ways we can retrieve the data in the result set of MYSQL using PHP? What is the difference between mysql-fetch-object and mysql-fetch-array? **(5)**

(b) What is MYSQL? What are the different data types in MYSQL? Explain each of them with suitable example. **(4)**

(c) Write connectivity and selecting database statement which is used to connect PHP with MYSQ **(3.5)**

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

END TERM EXAMINATION

FIFTH SEMESTER [BCA] NOVEMBER – DECEMBER 2017

Paper Code: BCA-315 ***Subject: Business Economics***

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

(a) Economics and business economics.
(b) Opportunity cost and time value of money.
(c) Production cost and selling cost
(d) Economies and diseconomies of scale.
(e) Objectives of Fiscal Policy.
(f) Relationship in inflation and unemployment (Phillips Curve)
(g) Demonetization
(h) Out Sourcing.

UNIT-I

Q2 (a) Discuss demand and supply equilibrium. Explain role of price mechanism in a free market economy. **(3+2=5)**

(b) Define elasticity of demand. What are the types of elasticity of demand? **(2.5+5=7.5)**

Or

Q3 (a) Define Production Function. Discuss the law of variable proportion with three stages of production. **(4+4.5=8.5)**

(b) Discuss various types of costs. **(4)**

UNIT-II

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

Or

Q5 (a) Discuss features of monopoly market and degrees of price discrimination. **(6.5)**

(b) What are the features of oligopoly markets in India? Do you think Kinked demand hypothesis holds good given the characteristics of oligopoly markets in India? If so, explain. **(6)**

UNIT-III

Q6 (a) Explain circular flow of income in three sector economy with injection and leakages. **(6.5)**

(b) What are the methods of measurement of national income? **(6)**

Or

Q7 (a) Discuss the objectives and instruments of monetary policy in India. **(3+4.5=7.5)**

(b) What are the types of unemployment in developed and developing economy? **(5)**

UNIT-IV

Q8 (a) Discuss the role of WTO in economic development of Indian Economy. What are the different types of agreements? **(8.5)**

(b) Write note on TRIPS and TRIMS. **(4)**

Or

Q9 (a) Discuss the current EXIM policy with objectives. **(5.5)**

(b) What is role of Foreign Capital in India? **(3)**

(c) Write note on G-20. **(4)**

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