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(20517)

Roll No. ....

BCA-IV Sem.

18016

B.C.A. Examination, May 2017

Computer Graphics and Multimedia

Application

[BCA-401 (New)]

Time : Three Hours]   *[Maximum Marks : 75*

Note : Attempt questions from **all** sections as per instructions.

Section-A

(Very Short Answer Questions)

Note : Attempt **all** the **five** questions. Each question carries **3** marks. Very short answer is required not exceeding 75 words.

3×5=15

P.T.O.

1. What is Computer Graphics? Explain the use of Computer Graphics.   3

2. What is frame buffer memory?   3

3. Write the properties of Bezier Curve.   3

4. What are the main categories of Animation tools.?   3

5. Explain the characteristics of a good line.   3

Section-B

(Short Answer Questions)

Note : Attempt any **two** questions out of the following three questions. Each question carries **7½** marks. Short answer is required not exceeding 200 words.

7½×2=15

6. What is clipping? Explain the Mid-Point sub division Algorithm for line clipping.

7. Explain three basic Rules of Animation with example.

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8. Scale the square ABCD[A(0,0). B(3,0) C(3,3), & D(0,3)], three units in x-direction & Three units in y-direction with respect to origin.

Section-C

(Detailed Answer Questions)

Note : Attempt any **three** questions out of the following **five** questions. Each Question carries 15 marks. Answer is required in detail. $15 \times 3 = 45$

9. What is the use of Animation? Also explain different types of Animation, and also explain the different applications of multimedia.

10. Explain the following terms-translation, Scaling & Rotation about Origin & Reflection about X-axis.

11. What do you mean by projection? Differentiate between parallel projection and perspective projection.

12. Perform a 45^0 Rotation of triangle ABCD when A(0,0), B(1,1), & C(5,2), about origin.

13. What is polygon? Also explain the polygon clipping. and define the Sutherland Hodgeman Algorithm for polygon clipping.

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P.T.O.

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BCA-IV Sem.

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Roll No.......................

18019

B.C.A. Examination, May 2017

Optimization Techniques

(BCA-404)

(New)

Time : Three Hours]   *Maximum Marks : 75*

Note : Attempt **all** the sections as per instructions.

Section-A

Note : Attempt **all five** questions. Each question carries 3 marks.

1.   What is the condition in algorithm that an L.P.P. has unbounded solution?

2.   Define inventory problem. List the various costs associated with an inventory problem.

3.   Define money value, present value and discount rate.

4.   Define queue length, waiting time and busy period.

5.   Explain sequencing problem.

Section-B

Note : Attempt any two questions from this section. Each question carries 7.5 marks.

$$7\frac{1}{2} \times 2 = 15$$

6.   Solve the following assignment.
      Problem :

Man → Job↓	1	2	3	4
I	12	30	21	15
II	18	33	9	31
III	44	25	24	21
IV	23	30	28	14

P.T.O.

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7. Solve by graphical method the linear programming problem .

$$\min z = 20x_1 + 10x_2$$

such that $x_1 + 2x_2 \leq 40$

$$3x_1 + x_2 \geq 30$$

$$4x_1 + 3x_2 \geq 60$$

and $x_1, x_2 \geq 0$

8. We have five jobs, each of which have to go through the machines A, B and C in the order ABC.

Processing time in hours

Jobs	1	2	3	4	5
Machine A (A_i)	5	7	6	9	5
Machine B (B_i)	2	1	4	5	3
Machine C (C_i)	3	7	5	6	7

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P.T.O.

Determine a sequence for the jobs that will minimize the total elapsed time.

Section-C

Note : Attempt any **three** questions out of the following **five** questions. Each question carries 15 marks.

9. Solve the following LPP

$$\text{Max } z = 40x_1 + 35x_2$$

subject to

$$2x_1 + 3x_2 \leq 60$$

$$4x_1 + 3x_2 \leq 96$$

$$x_1 , x_2 \geq 0$$

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10. Solve the following transportation problem

	D_1	D_2	D_3	Available
O_1	2	7	4	5
O_2	3	3	1	8
O_3	5	4	7	7
O_4	1	6	2	14
Required	7	9	18	

11. On average 96 patients per 24 hour day require the service of an emergency clinic. Also on average a patient requires 10 minutes of active attention. Assume that the facility can handle only one emergency at a time. Suppose that it costs the clinic Rs. 100 per patient treated to obtain an average serving time of 10 patients and that each minute of of decrease in the average time would cost by Rs. 10 per patient treated. How much would to be budgeted by the clinic to decrease the average size of the queue from one and one third patients to half a patient?

12. The cost of new machine is Rs. 5000. The maintenance cost of nth year is given by $C_n = 500(n-1)$, $n=1, 2$ -----. Suppose that the discount rate per year is 0.5. After how many years it will be economical to replace the machine by new one?

13. Use graphical method to minimize the time needed to process the following jobs on machines shown below i.e. for each machine find the job which should be done first. Also calculate the total time needed to complete both jobs.

Job1		Job2	
Sequence of Machines	Time	Sequence of Machines	Time
A	2	C	4
B	3	A	5
C	4	D	3
D	6	E	2
E	2	B	6

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Roll No. ....

BCA - IV Sem.

18018

B.C.A. Examination, May 2017

Software Engineering

(BCA-403)

(New)

Time : Three Hours]   *[Maximum Marks : 75*

Note : Attempt questions from all sections as per instructions.

Section-A

Note : Attempt all five questions.   3×5=15

1. Define Software Engineering.

2. How can we derive the size of software product?

P.T.O.

3. What Is SRS?

4. What are various types of software Maintenance?

5. What is software Metric?

Section-B

Note : Attempt any two questions. 7½×2=15

6. Explain the Importance of configuration management in software engineering.

7. What is software Re-engineering and why it is required?

8. What are the various elements of data design?

Section-C

Note : Attempt any three questions. 3×15=45

9. Explain interative waterfall and spiral model for software life cycle and various activities in each phase.

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10. Draw and explain the framework for sequential maintenance process activities.

11. How good design helps in efficient implementation?

12. Explain the various building blocks for CASE.

13. Explain the type of Maintenance in details.

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BCA - IV Sem.

18017

BCA Examination, May 2017

Operating System

(BCA-402)

(New)

Time : Three Hours] *[Maximum Marks :- 75*

Note : Attempt **all** the sections as per instruc-tions.

Section-A

(Very Short Answer Questions)

Note : Attempt all **five** questions. Each question carries 3 marks. 3×5=15

1. Define the following terms : 3

    (a) Batch processing

    (b) Time sharing

    (c) Real Time

P.T.O.

2. What are the classical problems of Synchronisation? 3

3. List three examples of deadlocks that are not related to a Computer system environ-ment. 3

4. What do you understand by virtual devices? and what are the advantages of virtual de-vices? 3

5. Give the various allocation methods of file system. 3

Section-B

Note : Attempt any **two** questions. Each ques-tion is of 7.5 marks. 7.5×2=15

6. Define the contiguous linked allocation and non-contiguous allocation with suitable ex-amples. 7.5

7. Describe the Paging and Segmentation tech-niques of memory management in detail. 7.5

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8. What are Process Control Blocks (PCBs)? Why these are used by Operating system? Also explain the structure of PCB. 7.5

Section-C

Note : Attempt any **three** questions. Each question is of 15 marks. Answer is required in detail. 15×3=45

9. Consider the following page reference string

1, 2, 3, 4, 1, 2, 5, 1, 2, 3, 4, 5

How many page fault would occur for the following replacement algorithms, assuming four frames : 15

(a) LRU replacement

(b) FIFO replacement

(c) Optimal replacement

10. (a) Discuss various scheduling algorithm with examples. 10

(b) Explain the difference between thread and process. 05

18017\3 P.T.O.

11. Define deadlock. What are the four necessary conditions for deadlock. Discuss different strategies for denying various necessary conditions. 15

12. (a) Explain the structure of a disk with the help of a diagram. 7.5

(b) Explain - the concept of swap-space management. 7.5

13. Write short notes on any **three** of the following : 5×3=15

(a) Directory Structure

(b) Multi threading Concept

(c) File Protection and Security

(d) Free Space Management

(e) Thrashing

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