Reg. No. : ....

Name : ....

Third Semester B.C.A./B.Sc. Degree Examination, December 2017
Career Related FDP Under CBCSS
(Computer Science/Computer Applications/Physics and Computer Applications)
Core Course : CP 1342/CS 1343/PC 1371 : OPERATING SYSTEMS
(2014 Admission Onwards)

Time : 3 Hours   Max. Marks : 80

SECTION – A (Very Short Answer Type)   (10×1=10 Marks)

(**One** word to maximum of **one** sentences. Answer **all** questions)

1. Define Bootstrap Program.

2. Expand SCSI.

3. Write an example for Multi-Task Operating System.

4. What is the use of fork ?

5. What is dynamic linking ?

6. Define fragmentation.

7. Write the simple file allocation method.

8. What is DMA ?

9. Define compaction.

10. Define latency.

SECTION – B (Short Answer Type)   (8×2=16 Marks)

(**Not** to exceed **one** paragraph, answer **any eight** questions. **Each** question carries **two** marks.)

11. What is Operating System ?

12. What is a process ?

13. What is the use of Scheduler ?

14. What is Context Switch ?

15. What is partition ?

16. What is page table ?

17. What are the two types of file access methods ?

18. Write the file allocation methods.

19. What is hash table ?

20. What is cache ?

21. Define seek time.

22. What are the two types of file access methods ?

SECTION – C (Short Essay)   (6×4=24 Marks)

(**Not** to exceed **120** words, answer **any six** questions. **Each** question carries **four** marks.)

23. Differentiate Batch and time sharing system.

24. What are the system call categories ?

25. Write a note on Thread.

26. What are the scheduling criterias ?

27. What are the services of operating system ?

28. Draw a process state diagram and brief.

29. Brief about the process control block.

30. Write a note on Semaphore.

31. Describe the Resource allocation graph.

SECTION – D (Long Essay)   (2×15=30 Marks)

(Answer **any two** questions. **Each** question carries **15** marks)

32. Explain the scheduling algorithms.

33. Discuss about the various memory allocation methods.

34. Explain about page replacement algorithm.

35. Describe the different Disk scheduling methods in detail.

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Third Semester B.A./B.Sc. Degree Examination, December 2017
First Degree Programme under CBCSS
ENGLISH (Language Course)
EN 1311.1/EN 1311.3 Writing and Presentation Skills
(Common for B.A./B.Sc. & Career Related 2 (a))
(2015 Admission Onwards)

Time : 3 Hours   Max. Marks : 80

I. Answer all questions, **each** in a word or sentence.

   A) Rewrite the following sentences correcting errors if any.

     1) They discussed about the issue.

     2) We are playing cricket every day.

     3) Neither of the girls have left.

     4) He is sleeping for two hours.

     5) The box of chocolates are missing.

   B) Write **one** synonym **each** for the following words.

     6) discover

     7) accomplish

     8) elevate

     9) cleanse

     10) depict.   **(1×10=10 Marks)**

II. Answer **any eight**, **each** in a short paragraph of approximately 50 words.

   11) How has information technology increased the scope of writing ?

   12) How important is "punctuation" as an aspect of the mechanics of writing ?

   13) What is "collocation" ?

14) What is the difference between "functional writing" and "creative writing"?

15) What is the purpose of an outline?

16) What is 'editing' and how important is it?

17) Explain the structure of a 'paragraph'.

18) What is an expository paragraph?

19) What are the 'don'ts' in a concluding paragraph?

20) What are the features that characterise a narrative essay?

21) What are official letters and what are business letters?

22) Differentiate between 'chronological resume' and 'functional resume'.

(8×2=16 Marks)

III. Answer **any six** as directed.

23) Your college union has been conducting traffic safety awareness programmes for auto-rikshaw drivers, cab drivers and the general public during the current academic year. Prepare a brief report on these programmes to be published in the college magazine.

24) Write a letter to the editor of a newspaper on the need for the government to take stern action against those who spread false propaganda about the ongoing Measles Rubella vaccination drive.

25) The bus operators in your town do not allow students to enter buses parked in the bus stand until after all other passengers have boarded. Write a letter of complaint to the Regional Transport Officer asking him to initiate steps against such bus operators.

26) Prepare a questionnaire to be used in a survey on the rising number of two-wheeler accidents in your town.

27) You are a newspaper reporter. You are asked to interview a doctor in the city who has conducted many successful heart transplant surgeries. Prepare eight questions you would like to ask him.

28) What are the seven types of presentations?

29) Your school friend has sent you an email requesting your presence at a class reunion. However, you have to attend a job interview on that day and you will not be able to participate. Email him a reply informing him of your inability to attend the reunion.

30) How important is "body language" when you make a presentation ?

31) Write a precis of the following passage reducing the number of words to approximately one third.

"A keen sense of humour is the hall mark of culture. When a person can crack a joke on himself, he raises himself at once in the estimation of his friends. There are people who can throw jokes at others, but never take one thrown against themselves. This one-way traffic is not really a high sense of good humour. It is the essence of humour that there should be give and takes in the process. Good humour is often the test of tolerance. A fanatic is incapable of good humour. He is tearing others to pieces fearing of getting himself torn all the time. Good humour defeats itself if there is malice in it, or is indulged in to hurt others. A joke should never hurt, otherwise it is no joke at all. A joke should make the person who makes it and the person who has to take it, laugh together. That is why tolerance and culture are the sources of every good joke". **(6×4=24 Marks)**

IV. Answer **any two** as directed.

32) Attempt an essay on "the role of audio-visual media in education" in about 300 words.

33) Create content for 15 slides on the topic "India : Unity in Diversity".

34) Your name is Nivin. You have an M.B.A. degree from a prestigious university. You are applying for a job as Area Marketing Manager with a well-known company specialising in fast moving consumer goods. Prepare a resume and a covering letter.

35) You are the secretary of the town's library council. Prepare a report to be read out in the annual general body meeting of the members enlisting the activities and achievements of the library during the year 2015 – 16.

(2×15=30 Marks)

Third Semester B.Sc. Degree Examination, December 2017
Career Related FDP under CBCSS
Group 2(a) : PHYSICS AND COMPUTER APPLICATIONS
PC 1372 : Data Structures
(2014 Admission Onwards)

Time : 3 Hours   Max. Marks : 80

PART – A

Answer all questions. **Each** question carries **one** mark.

1. The maximum number of nodes on level n of a binary tree is

2. What is degree of a node ?

3. Define max heap.

4. What is a double ended queue ?

5. Define indegree of a graph.

6. What are the four basic operations of data structures ?

7. The result of evaluating the postfix expression 5, 4, 6, +, *, 4, 9, 3, /, +, * is

8. What is a static data structure ?

9. Define polish notation.

10. What is linear hashing ?   **(10×1=10 Marks)**

PART – B

Answer **any 8** questions, **each** question carries **2** marks.

11. What are the advantages of doubly linked list over singly linked list ?

12. What is hashing technique ? Describe in brief.

P.T.O.

13. Describe full binary tree and complete binary tree.

14. What is the difference between a stack and a queue ?

15. Write an algorithm to insert a node in the beginning of the linked list.

16. State the demerits of linked representation of binary trees.

17. Explain selection sort and insertion sort.

18. List out the basic operations that can be performed on a stack.

19. List the limitations of linear probing.

20. Give a sample implementation for queue in C.

21. State different ways of traversing binary tree.

22. State the different types of linked lists and explain their keys features.

(8×2=16 Marks)

PART – C

Answer any 6 questions, each question carries 4 marks.

23. Explain operations of Queue.

24. Which are the two standard ways of traversing a graph ? Explain them with an example of each.

25. What do you mean by hashing ? Explain any five popular hash functions.

26. Write an algorithm to search a particular data in a singly linked list.

27. Explain in detail about sorting and different types of sorting techniques.

28. Differentiate between static and dynamic data structures.

29. Define tree and binary tree. Explain with examples.

30. Give a stack sample implementation in C.

31. Define the following terms :

    a) Tree   b) subtree

    c) children nodes   d) siblings

    e) rootnode   f) degree of tree.   **(6×4=24 Marks)**

PART – D

Answer **any 2** questions. **Each** question carries 15 marks.

32. Write breadth first search algorithm and its applications.

33. Write algorithms to perform insert delete operations on binary tree, and explain them with an example.

34. What are the operations on Linear Lists ? Differentiate between using Arrays and Linked Lists for implementation of Linear Lists.

35. Implement stack using arrays.   **(2×15=30 Marks)**

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Third Semester B.Sc. Degree Examination, December 2017
Career Related First Degree Programme Under CBCSS
PHYSICS AND COMPUTER APPLICATIONS
Core Course
PC 1341 : Electrodynamics
(2014 Admission Onwards)

Time : 3 Hours   Max. Marks : 80

SECTION – A

Answer **all** questions in **one** or **two** sentences **each**. **Each** question carries 1 mark.

1. Write down Maxwell's equations in matter.

2. Give the relation between D, E and P.

3. Write down the differential form of Gauss' law.

4. What is the relation between electric field and electric potential ?

5. Write down the boundary conditions for the electrostatic field.

6. What is an ideal voltage source ?

7. State Maximum power transfer theorem.

8. Give the vector form of Coulomb's law.

9. Define the dipole moment and give its unit.

10. Write down the expression for the magnetic vector H.   **(10×1=10 Marks)**

SECTION – B

Answer **any 8** questions. **Each** carries **2** marks.

11. What is magnetic vector potential ?

12. State and explain Ampere's circuital theorem.

13. Obtain the equation of continuity.

14. State and explain Norton's theorem.

15. Explain resonance in a series LCR circuit.

16. Explain the physical significance of Gauss' law in magnetism.

17. What is motional emf ?

18. Differentiate between polar and non-polar dielectrics.

19. Explain the momentum of electromagnetic waves.

20. Explain the term quality factor.

21. Explain the circuit of Maxwell's bridge.

22. What is Maxwell's correction to Ampere's law ?   **(8×2=16 Marks)**

SECTION – C

Answer **any 6** questions. **Each** carries **4** marks.

23. Find the expression for the magnetic field at a point due to a straight current carrying conducting wire.

24. A proton of kinetic energy 5.3 M eV enters a magnetic field of strength 1.2×10^{-2} T perpendicularly. Find the Lorentz force on the proton. Take the mass of the proton to be 1.67×10^{-27} kg.

25. The magnetic flux through a coil of resistance 5 Ohms varies as $\varphi = 3t^2 + t + 5$ Weber. Find the induced current in the coil at time t = 3s.

26. Does the field $F = 3x\hat{x} + 3y\hat{y}$ represent an electrostatic field ?

27. Find the electric field due to a uniformly charged sphere at points outside and inside the sphere.

28. Find the magnetic field on the axis of a long solenoid of 500 turns per metre and carrying a current 2 A.

29. Find the polarization P in a dielectric material of dielectric constant 2.8 for which $E = 3 \times 10^{-7}$ V/m.

30. A coil of area 2.5×10^{-4} m^2 has 250 turns and carries a current 100×10^{-6} A. Find the dipole moment.

31. Derive Laplace's equation in electrostatics.   **(6×4=24 Marks)**

SECTION – D

Answer **any 2** questions. **Each** carries **15** marks.

32. Obtain the expressions for electric field and electric potential due to an electric dipole.

33. Describe the surface and volume bound currents in a magnetic material and obtain the relation between M, H and B.

34. Obtain Maxwell's equations in vacuum. Explain how Maxwell's equations lead to the prediction of electromagnetic waves.

35. Explain the parallel LCR circuit and explain its use as a rejector circuit.

                                            (2×15=30 Marks)