Roll No. ☐☐☐☐☐☐☐☐☐☐☐

Total No. of Questions : 09

B.Tech.(CE/ECE) (Sem.–6)
# OPERATING SYSTEM
Subject Code : BTIT402/18
M.Code : 79636
Date of Examination : 28-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

   a) Define Kernel.

   b) Write the concept of context switching.

   c) Write concept of Multitasking.

   d) What are Deadlocks?

   e) What do you understand by page fault?

   f) What are services of OS?

   g) Write concept of swapping.

   h) What are Process States?

   i) How segmentation is used in OS?

   j) What are services of Operating System?

SECTION-B

2. What do we mean by Process Management? What are the states of a process in OS?

3. What is a thread? Explain multithreading. What are types of threads?

4. Find Waiting Time and Turnaround time for given Process using FCFS and SCF Algorithms.

Process	Arrival Time (ms)	Burst Time (ms)
P1	1	5
P2	2	4
P3	2	7

5. What are classical IPC problems?

6. What are the conditions for process in critical section.

SECTION-C

7. Explain the concept of file system in Operating System. What are types of file allocation methods? Explain the advantages and disadvantages of using a file system.

8. What are the different terminologies to take care of in any CPU scheduling? Explain any three scheduling algorithms with the help of examples.

9. Explain the concept of Operating Systems. What are types of operating system? What are Operating System services?

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(S2)-1157

Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐

Total No. of Questions : 09

Total No. of Pages : 02

B.Tech. (CE/FT/IT/CSE/ECE/ME/EE) (Sem–6)
NON-CONVENTIONAL ENERGY RESOURCES
Subject Code : BTME615-18
M.Code : 79660
Date of Examination : 09-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1.   Answer briefly :

(a) What is solar constant?

(b) What is solar distillation?

(c) What is anemometer?

(d) What is pyrolysis?

(e) What is Betz limit in wind power?

(f) Explain 'lift' and 'drag' in wind turbines.

(g) What are the limitations of tidal energy?

(h) What are main components of a fuel cell?

(i) What is chemical composition of bio-gas?

(j) What are the limitations of hydrogen energy?

(S2)-1198

SECTION-B

2. Explain construction and working of a flat plate collector with the help of diagrams.

3. Explain the process of producing alcohol fuel from biomass.

4. Discuss various applications of solar energy.

5. Explain working of single basin tidal power plant.

6. Explain advantages and limitations of a fuel cell.

SECTION-C

7. Derive an equation to estimate the maximum efficiency of a wind turbine.

8. Discuss various bio-mass conversion technologies.

9. Explain different methods for storage and transportation of hydrogen.

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(S2)-1198

B.Tech. (ECE)   (Sem.–6)

C# AND .NET PROGRAMMING

Subject Code : BTEC/906D/18

M.Code : 79380

Date of Examination : 20-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

    a) Lambdas

    b) Event

    c) Exceptions

    d) Errors

    e) Pointers

    f) Object and Interface

    g) WPF

    h) Assemblies

   i) XAML

    j) Framework.

SECTION-B

2. Define Indexers. Can they be overloaded? Justify.

3. Write a note on SAX and DOM.

4. Differentiate between abstract and interface. Explain the concept of polymorphism.

5. What is garbage collection? Explain the differences between garbage collection in DotNet and earlier versions.

6. Explain how testing and debugging is done in .Net?

SECTION-C

7. What is collection? Explain its different types. Write a procedure to add and remove items in collections.

8. Define ADO. What is its use? How it helps the user in programming applications?

9. Write a note on testing and debugging in Dot Net framework.

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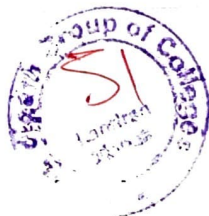
Total No. of Questions : 09

B.Tech. (Civil Engineering / Electrical Engineering / Electronics & Communication Engineering) (Sem.–6)

OPERATING SYSTEMS

Subject Code : BTCS402/18

M.Code : 79262

Date of Examination 21-05-2024

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

    (i)   Discuss access methods of a file.

    (ii)   Differentiate between physical and logical address space.

    (iii)   Discuss criteria used to measure CPU performance.

    (iv)   What is real time operating system? Explain briefly.

    (v)   Briefly explain the functions performed by an Operating System.

    (vi)   What is multithreading?

    (vii)   Discuss directory structure.

    (viii) What is dining philosopher problem?

    (ix)   Discuss EDF real time scheduling method.

    (x)   What is the importance of PCB (Process Control Block)?

SECTION-B

2. What do you understand by a process? Draw the state transition diagram and explain the purpose of each state.

3. Explain with example FCFS and Round Robin scheduling algorithms.

4. Compare static and dynamic contiguous partitioned memory management schemes.

5. What are semaphores? How can they be used to implement mutual exclusion?

6. Explain Multi programming and Time Sharing operating systems.

SECTION-C

7. What is a deadlock? Explain necessary conditions for deadlock occurrence. Discuss any method used for deadlock avoidance with example.

8. What do you mean by virtual memory? How it is implemented? Explain-various techniques used to manage the virtual memory.

9. What do you mean by disk scheduling? Explain in detail various disk scheduling algorithm with the help of suitable example.

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(S2)-962

B.Tech. (CE / CSE / AI&ML / EE / ECE / EEE / IT/ DS / Internet of Things and Cyber Security including Block Chain Technology / BCA) (Sem–6)

WIRELESS COMMUNICATION

Subject Code : BTEC-601-18

M.Code : 79373

Date of Examination : 11-05-2024

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly :

   a. Define cellular system.

   b. What is a cluster?

   c. What is the need for diversity?

   d. What is channel modeling?

   e. What is Pure ALOHA?

   f. Define SDMA.

   g. List GSM services.

   h. What is IMSI and TMSI?

   i. Define reduction factor.

   j. List disadvantages of cell splitting.

(S2)-600

SECTION-B

2. What is FDMA? Explain different features of FDMA.

3. What is fading? Differentiate :

   a. Fast and slow fading

   b. Flat and selective fading.

4. What is the principle of frequency reuse in the context of cellular networks? List the ways of increasing the capacity of a cellular system.

5. In GSM network, explain the role of Network and Switching subsystems.

6. Explain wireless cable television in detail.

SECTION-C

7. Describe Spread spectrum technologies.

8. Explain different types of GSM Channels.

9. Explain diversity techniques in detail.

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(S2)-600

B.Tech. (Electronics & Communication Engineering) (Sem.–6)

MICROWAVE AND ANTENNA ENGINEERING

Subject Code : BTEC/603/18

M.Code : 79376

Date of Examination : 08-05-2024

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

    a. What is a multi-cavity Klystron amplifier?

    b. What is crossed field amplifier?

    c. Explain the modes of Gunn diode.

    d. What is directional coupler?

    e. What is the difference between circulator and Gyrator?

    f. Define Voltage standing wave ratio (VSWR).

    g. Define antenna beam width and radiation resistance.

    h. Define broad side antenna array.

    i. Define Loop antenna.

    j. Define Far and radiating near field.

SECTION-B

2. With the help of suitable diagram, explain the forking principle of attenuators?

3. Draw diagrams of circular cavity resonator. Derive the equation for resonant frequency in circular cavity resonator.'

4. Explain two valley model theory. Write a short note on "TRAPATT diode".

5. What are slow wave structures? Explain how a helical TWT achieve amplification.

6. Explain following antenna parameters in detail: reflection coefficient, radiation pattern, directivity and gain.

SECTION-C

7. For an end side antenna array of n elements, derive the expression of direction of pattern maxima, pattern minima and beam width of major lobe. Assume the distance between each element is 'd' and each antenna element carries current of equal amplitude and progressive phase.

8. Describe the basic characteristics, radiation mechanism, and feeding method of microstrip patch antenna.

9. Explain junctions as a microwave component and derive the S-matrix for E and H junctions.

(S2)-1722

B.Tech. (ECE) (Sem–6)

OPTICAL FIBERS & COMMUNICATION

Subject Code : BTEC/602/18

M.Code : 79375

Date of Examination : 09-05-2024

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
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SECTION-A

1. **Answer briefly :**

   a) What do mean by channel multiplexing?

   b) What is fiber bandwidth?

   c) What is pulse broadening?

   d) How is the light propagating along a fiber?

   e) Define degradation in optical receivers.

   f) What is the significant of bit error rate in receivers?

   g) What is wave guide dispersion?

   h) What are the fiber losses?

   i) How frequency chirp is formed?
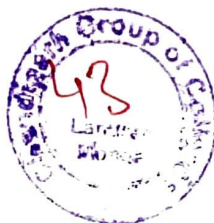
   j) What is code division multiplexing?

(S2)-414

SECTION-B

2. What is dispersion in Optical Fiber? Discuss the group velocity dispersion in details.

3. Discuss the non-linear optical effects in detail.

4. Draw and explain the working of coupled cavity semiconductor Lasers.

5. Draw and explain MSM photo detector.

6. A multimode step index fiber with a core diameter of 80 μm and relative index difference of 1.5% is operating at a wavelength of 0.85 μm. If the core refractive index is 1.48, estimate :

   a) the normalized frequency for the fiber;

   b) the number of guided modes.

SECTION-C

7. a) Discuss degradation mechanisms in injection LASERS. Comment on these with regard to the CW life time of the devices.

   b) What are the nonlinear optical effects?

8. a) What are the different advantages of optical fiber over conventional electrical communication systems.

   b) Briefly describe linear scattering losses in optical fiber with regard to :

      i. LED structure

      ii. Graded Indexed Fiber

9. Write a short note on following :

   a) WDM light wave systems

   b) Sources of power penalty

   c) p n photo diode.

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(S2)-414

B.Tech. (Electronics & Communication Engineering) (Sem.–6)

MICROWAVE AND ANTENNA ENGINEERING

Subject Code : BTEC/603/18

M.Code : 79376

Date of Examination : 08-05-2024

Time : 3 Hrs.   Max. Marks : 60

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   b. What is crossed field amplifier?

   c. Explain the modes of Gunn diode.

   d. What is directional coupler?

   e. What is the difference between circulator and Gyrator?

   f. Define Voltage standing wave ratio (VSWR).

   g. Define antenna beam width and radiation resistance.

   h. Define broad side antenna array.

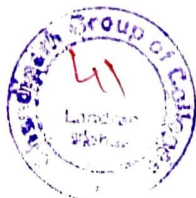   i. Define Loop antenna.

   j. Define Far and radiating near field.

SECTION-B

2. With the help of suitable diagram, explain the forking principle of attenuators?

3. Draw diagrams of circular cavity resonator. Derive the equation for resonant frequency in circular cavity resonator. '

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SECTION-C

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8. Describe the basic characteristics, radiation mechanism, and feeding method of microstrip patch antenna.

9. Explain junctions as a microwave component and derive the S-matrix for E and H junctions.

B.Tech. (ECE) (Sem.–6)

COMPUTER NETWORKS

Subject Code : BTCS/504/18

M.Code : 79374

Date of Examination : 06-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
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SECTION-A

1. Explain the following:

    a) Protocol

    b) HDCP

    c) WWW and E-mail

    d) Subnetting

    e) Use of DNS

    f) PPP protocol

    g) Bus and Star topology

    h) Congestion control

    i) RS 232C

    j) Fiber Optic cable.

SECTION-B

2. Explain various types of transmission impairments.

3. Explain the four way process of handshaking to terminate the connection in TCP.

4. Discuss various CSMA protocols.

5. Describe how leaky bucket protocol is used for congestion control?

6. Explain stop and wait ARQ mechanism.

SECTION-C

7. Write a detailed note on link state routing protocols.

8. Explain the distance vector routing protocols. What are its major drawbacks?

9. Explain in detail error detection and correction control methods.

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