

Roll No.

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Total No. of Questions : 09

Total No. of Pages

B.Tech.(ECE) (Sem.-5)

PROGRAMMING IN JAVA

Subject Code : BTEC-905D-18

M.Code : 78710

Date of Examination : 16-12-2024

Max. Marks : 60

Time : 3 Hrs.

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 are benefits of OOP?
- b) What are derived data types?
- c) Define Java statements.
- d) Write about data types in Java?
- e) What are string functions in Java?
- f) What are abstract methods?
- g) What is the life cycle of an Applet?
- h) What are Java Beans?
- i) What is error and exception handling in Java?
- j) How does Remote Method Invocation (RMI) work?

P.T.U. Question
B.Tech ECE
Sem

SECTION-B

2. Explain the following

- a) Variables and constants in Java
 - b) Operators in Java.
3. Discuss various decision making and branching statements available in Java. Show their syntax.
 4. How applets are created? Discuss how they are executed.
 5. What are Swing Packages and Classes in Java, and how they are used?
 6. Explain the use of Java AWT package. Discuss its layouts.

SECTION-C

7. What is the Common Object Request Broker Architecture (CORBA) and how does it compare to RMI?
8. What are exceptions in Java? How Try and Catch are used to handle the exception?
9. Explain the concept of database connectivity. Show with example how it is used in Java Program?

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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (ECE)(Sem.-6)
COMPUTER NETWORKS
Subject Code : BTCS-504-18
M.Code : 79374
Date of Examination : 17-12-2024

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. Explain the following:**
- a) Write at least two advantages of Frequency division multiplexing.
 - b) What is transmission media in the context of computer networks, and why is it important?
 - c) Explain in brief about Block coding.
 - d) What is error detection, and why is it important in data communication?
 - e) Explain the term Switching in brief.
 - f) Define the concept of sub-netting and its role in IP address management.
 - g) Why do we need congestion control?
 - h) Differentiate between Transmission control protocol and UDP (User Datagram Protocol).
 - i) Explain in brief about SNMP.
 - j) What is a firewall? Explain in brief.

P.T.U Questions Paper
System Exam - C

SECTION-B

2. Write a detailed note on Virtual LAN.
3. Write a detailed note on CSMA/CD.
4. Explain in detail about BOOTP.
5. Explain the Leaky Bucket Algorithm in detail.
6. Write a detailed note on Domain Name Space (DNS) and DDNS.

SECTION-C

7. Write a detailed note on various Transmission Media in detail.
8. Write a detailed note on Uncast Routing protocols.
9. Write a detailed note on following :
 - a) E-MAIL
 - b) HTTP

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Total No. of Questions : 09

OPTICAL FIBERS & COMMUNICATION

Subject Code : BTEC-602-18

M.Code : 79375

Date of Examination : 22-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

- 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 :

- What is the importance of normalized frequency?
- What is the significance of optical power? Convert $1 \mu\text{ W}$ optical power into dBm.
- Differentiate between SBS and SRS non-linear effects.
- What are the advantages of graded index fiber?
- What is Rayleigh scattering?
- Explain the advantage of Optical TDM system.
- What is frequency Chirping?
- Define group velocity dispersion with an example.
- Explain the spectral line width with suitable example.
- Explain stimulated light scattering with neat diagram.

SECTION-B

2. Describe two types of detector used in OFC with neat block diagram.
3. Explain the phenomenon of total internal reflection using Snell's law with figures and calculations.
4. Differentiate intra and inter modal dispersion with diagram.
5. Draw and explain the LED structures based Double Hetrostructure configuration.
6. Draw and explain the working of coupled cavity semiconductor laser with neat diagram.

SECTION-C

7. Explain p-i-n photodiode in detail. What is the main advantage of p-i-n photodiode over p-n photodiode?
8. Explain the function of each block with a help of neat block diagram of a digital optical fibre communication system.
9. Explain the dispersion shifted and dispersion flattened fibers with neat diagram. Why do we need such fibers and how these fibers are made?

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Total No. of Pages : 02

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

OPERATING SYSTEM

Subject Code : BTCS402-18

M.Code : 79262

Date of Examination: 18-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

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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. Name types operating systems.
- b. Define layered OS.
- c. What is the function of Thread?
- d. Discuss FCFS.
- e. What is Process Synchronization?
- f. What is throughput?
- g. What is Non Preemptive scheduling?
- h. What is Mutual Exclusion?
- i. Define C-SCAN.
- j. What are hash table?

SECTION-B

2. What is Process Control Box? Discuss the different states of Process.
3. Discuss the use of Round Robin algorithm in scheduling.
4. Write overview of windows operating system.
5. Discuss the use of protection and sharing in Paging.
6. Write a short note on dining Philosopher Problem.

SECTION-C

7. What are the conditions for Deadlock? How the Deadlocks can be prevented?
8. What is the role of File Management in operating system? Explain various allocation methods.
9. Explain the Demand Paging and the role of Page replacement algorithms in it.

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Total No. of Questions : 09

WIRELESS COMMUNICATION

WIRELESS COMMUNICATION

Subject Code : BTEC-601-18

M.Code : 79373

Date of Examination : 20-01-2025

Max. Marks : 60

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

- 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 frequency reuse and frequency reuse factor.
 - b. What is co-channel interference?
 - c. Define Doppler spread and coherence time.
 - d. Define handoff and its types.
 - e. Define blocked call and call dropped rate.
 - f. What is the role of Mobile Switching Centre (MSC) in cellular system?
 - g. Define AMPS and ETACS.
 - h. Why we use directional antenna instead of Omni-directional one in cell?
 - i. Differentiate between TDMA and FDMA.
 - j. Differentiate between Bluetooth and Zigbee.

SECTION-B

2. Explain different components and operation of cellular system.
3. With the help of cosine law and hexagon cell geometry, prove that for a hexagonal cell geometry, the co-channel reuse ratio is given by $Q = \sqrt{3N}$, where $N = i^2 + j^2 + ij$.
4. Classify types of fading based on multipath delay spread, doppler spread, symbol period and band width.
5. Write short notes on EDGE and IS-95 CDMA standard.
6. Derive the desired carries to interference (C/I) ratio from a normal case in an Omni directional antenna system.

SECTION-C

7. With the help of proper labeled diagram, explain the frame structure, architecture and speech processing of GSM system. Why are so many logical channels used in the GSM?
8. How diversity technique improves the performance of receiver in multipath scenario? Explain selection and switched combining in detail.
9. **Write a short note on:**
 - a. UMTS standards and its specification.
 - b. LTE-Advance systems.
 - c. Space Division Multiple Access and Packet Radio Protocols.

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B.Tech. (Electronics & Communication Engineering) (Sem-6)
MICROWAVE AND ANTENNA ENGINEERING

MICROWAVE AND ANTENNA ENGINEERING
Subject Code : BTEC-603-18

Subject Code : BTEC-603-18

M.Code : 79376

Date of Examination : 02-01-2025

Max. Marks : 60

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :
 1. This is COMPULSORY component.

- INSTRUCTIONS TO CANDIDATES :**
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SECTION-A

1. Answer briefly :
- a) State Faraday's rotation law.
 - b) What is the significance of VSWR measurement?
 - c) Explain the radiation intensity of an antenna.
 - d) Define the phase and group velocities.
 - e) Explain a dipole antenna.
 - f) Differentiate klystron and reflex klystron based on their principle of operation.
 - g) What is circulator?
 - h) What is Babinet's principle?
 - i) Explain directivity of an antenna.
 - j) What is a dominant mode for a microwave device?

SECTION-B

2. What are the types of Microwave bridges? Explain any two with neat diagram.
3. Draw and explain the Binomial and Dolph-Tschebyscheff array with neat diagram.
4. Draw and explain the operation of IMPATT device.
5. What is backward wave oscillator (BWO)? Explain its operation with a neat sketch.
6. With the help of appropriate diagram, explain the working of an isolator. What is the S-matrix of the isolator?

SECTION-C

7. What is standing wave? Derive the equation of Voltage Standing Wave Ratio. (VSWR) in terms of reflection coefficient.
8. Draw and explain the principle of operation of a Horn antenna with its design parameters specification.
9. Derive the expressions to explain the radiation pattern of an arrays of two isotropic point sources with equal amplitude and equal phase.

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