AGSG

SEE JAN 2024 LSCT02 / 09-02-2024

Computer Fundamentals and Office Tools -I

No. of Pages: 01	**Roll No:**	**Max. Marks: 40M**
Time: 2 Hrs	**No. of Questions: 16**	**Pass Min.: 16M**

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SECTION – A

Answer any FOUR questions **4 x 7 = 28 Marks**

1. Write various types of computers depending on their application.
2. Define Operating System. Explain the functions of OS.
3. Explain about Mail Merge and its uses.
4. Explain the steps in creating a presentation by using blank presentation in PowerPoint.
5. What are the features of Excel?
6. Explain formatting tips and techniques in Excel.

SECTION – B

Answer any SIX questions **6 x 2 = 12 Marks**

7. Explain the role of the CPU in a computer system.
8. Differentiate between software and hardware.
9. Define Control pane.
10. Define Cache Memory.
11. Explain the importance of headers and footers in a document.
12. Define Spell Checking.
13. Explain the significance of using templates in a presentation.
14. Define transition effects in a presentation.
15. What is the purpose of a cell in a spreadsheet?
16. What is meant by Reference? What are the types of References?

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No. of Pages : 02 | Question Paper | No. of Questions : 10

Course Code (s) : 51 | SEM - I | DD/MM/YY : 0 9 0 2 2 0 2 4

Subject : HINDI | Paper Code : HIN - 101 | Min Marks : 28

Title of the Paper : General Hindi

Time : 3:00 Hrs. | Regd. No : | | | | | | | | Max Marks : 70

SECTION - A

1. निम्न लिखित में से किन्हीं दो की संदर्भ सहित व्याख्या कीजिए । 2 x 6 = 12M

A. पिता ने कहा, '' हाँ ठीक है, वह दरवाजे पर मुझे मिला था ।''

B. सत्व - गुण के समुद्र में जिनका अन्तः करण निमग्न हो गया वे ही महात्मा, साधु और वीर हैं ।

C. शारीरिक का खाय भोजनीय पदार्थ है और मस्तिष्क का खाय साहित्य ।

D. विश्वासपात्र मित्र जीवन की एक औषधि है ।

2. निम्न लिखित गद्यांशों में से किसी एक पाठ का सारांश लिखकर उसकी विशेषताओं पर प्रकाश डालिए । 12M

1. मित्रता 2. सच्ची वीरता

3. निम्न लिखित कहानियों में से किसी एक पाठ का सारांश लिखकर उसकी विशेषताओं पर प्रकाश डालिए । 12M

1. मुक्तिधन 2. उस ने कहा था ।

4. निम्न लिखित में से किसी एक की टिप्पणी लिखिए । 8M

1. रहमान 2. लहनासिंह

SECTION - B

5. सूचना के अनुसार बदलिए ।
निम्न में से किन्हीं चार का लिंग बदलिए । 4 x 1 = 4M

1. देव 2. पुत्र 3. मंत्रि 4. राजा
5. मोर 6. पंडित 7. विद्वान 8. ठाकुर

6. निम्न में से किन्हीं चार का वचन बदलिए । 4 x 1 = 4M

1. पुस्तक 2. बात 3. रोटी 4. गुडिया
5. कलम 6. वस्तु 7. विधि 8. माला

7. किन्हीं पाँच का विलोम शब्द लिखिए । 5 x 1 = 5M

1. गरमी	2. गरीब	3. आदि	4. कोमल
5. अपना	6. गुण	7. दिन	8. प्राचीन

8. सूचना के अनुसार बदलिए । 3 x 1 = 3M

1. पुलिस चोर को पकडता है । (भूतकाल में बदलिए)
2. राम वन गया । (वर्तमानकाल में बदलिए)
3. लक्ष्मी गाती है । (भविष्यत काल में बदलिए)

SECTION - C

9. हिन्दी में अनुवाद कीजिए । 3 x 1 = 3M

1. President	2. Post Office	3. Collector
4. Director	5. Education	6. Convener

10. निम्न लिखित में से किसी एक पत्र लिखिए । 7M

1. नौकरी के लिए आवेदन पत्र लिखिए ।

(अथवा)

2. गर्मी की छुट्टियों के बारे में वर्णन करते हुए अपने मित्र को पत्र लिखिए ।

SEE JAN'24

ENGT21B/10-02-2024

ENGLISH PRAXIS-II

No. of Pages: 3
Time: 3Hrs
No. of Questions: X

Roll No:	

Max. Marks: 75M
Pass Min: 30M

SECTION - A

4 X 2 = 8M

I. A. Answer the following:

1. Where does the author spend his vacation?
2. How does the story "The Night Train at Deoli" present the theme of adoloscent infatuation?
3. Why were the Kelvey's not invited to see the Doll's house?
4. What are the two ways of avoiding dogmatism according to Bertrand Russell?

5M

B. Answer any ONE of the following:

1. Bring out the message of the lesson "How to Avoid Foolish Opinions'.
2. What is the significance of the little lamp in the Doll's house?

4 X 2 = 8M

II. A. Answer the following:

1. Why does Shelley call the West Wind both preserver and destroyer?
2. How did Upagupta treat the suffering dancing girl?
3. What place is sweeter than land to the fishermen?
4. What is the central idea of the poem "Upagupta"?

5M

B. Answer any ONE of the following:

1. How does Sarojini Naidu describe the life of the fishermen of Coromandel and their intense love of the sea?
2. How does Shelley describe the power of West Wind?

2 X 7 = 14M

III. Answer any TWO of the following:

1. Why was Florence Nightingale called "The Lady with the Lamp"?
2. Write the summary of the lesson "An Astrologer's Day".
3. Sketch the character of the astrologer.
4. Write the summary of the lesson "Florence Nightingale".

Contd...(2)

SECTION - B

Note: Answer all the sub questions in Q.No. IV at one place in the Answer Booklet in the order given in Question Paper.

IV. A. Change the following sentences as directed without changing their sense: 2 X 1 = 2M

1. I shall text her. (Use noun of text)
2. They served a wonderful meal. (Use adverb of wonderful)

B. Choose the right meaningful substitute word for the following statements: 3 X 1 = 3M

1. A person who sells flowers _____.
2. A person who writes beautiful writing _____.
3. A person who speaks more than one language _____.

C. Complete the following collocations using the words given in the brackets: 2 X 1 = 2M
(good at, get rid of, make)

1. She is _____ various activities.
2. Dont _____ a mistake, that hurts some one.

V. Read the following passage and make notes: *5M*

It is a wrong notion to think that studies are only for earning livelihood. Education may help a person to earn money; but that is not the sole purpose of education. It serves many other purposes. Studies keep us happy as there is no company as delightful as a book. A man who is with us may expect some help or the other form us, but, a book always gives us happiness without any expectation in return. But this information and knowledge that we get from reading also becomes a sort of invisible jewellery on our person. The idea we gain from studies make us better and thinking persons. Such people are always respected in the society.

VI. Write a resume for the post of Creative Content Developer for a Web Magazine. *4M*

VII. Write a letter to the Principal of your college with a request for the purchase of more books for the college library. **4M**

Contd...(3)

VIII. Expand any ONE of the following proverbs: *5M*

1. One good turn deserves another.
2. All that Glitters is not Gold.

IX. Read the following passage and answer the questions that follow: *5 X 1 = 5M*

Gratitude is a beautiful word. Gratitude is a feeling. It improves our personality and builds character. Gratitude develops out of humility. It is a feeling of thankfulness towards others. It is conveyed through our attitude towards others and reflects in our behaviour. Gratitude does not mean reciprocating good deeds; gratitude is not give and take. Kindness, understanding and patience cannot be repaid. What does gratitude teach us? It teaches us the art of cooperation and understanding. Gratitude must be sincere. A simple 'thank you' can be gracious. Many times we forget to be thankful to the people close to us such as our spouse, our relatives and our friends. Gratitude would rank among the top qualities that form the character and personality of an individual with integrity. Ego stands in the way of showing gratitude. A gracious attitude changes our out look in life. With gratitude and humility right actions come naturally.

1. How does gratitude help one?
2. How does the writer define gratitude?
3. What is the synonym of the word reciprocating?
4. What quality helps one develop gratitude?
5. What does gratitude teach us?

X. You are the Secretary of the Indian Sports Club in your town. The meeting of the office-bearers of the club is scheduled for the 20th of next month. Prepare an agenda for the meeting. 5M

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No. of Pages : 02 | Question Paper | No. of Questions : 16

Course Code (s) : 41, 53 | SEM - II | DD/MM/YY : 10/02/2024

Subject : CHEMISTRY | Paper Code : CHE - 201 | Min Marks : 28

Title of the Paper : Organic and General Chemistry

Time : 3:00 Hrs. | Regd. No : | Max Marks : 70

SECTION – A

Answer any **FOUR** of the following. Each question carries FIVE marks. **4x5=20M**

1. Explain Baeyer's strain theory.
   బేయర్ ప్రయాస సిద్ధాంతమును వివరింపుము.

2. What is Markonikov's rule? Give an example.
   మార్కోనికావ్ నియమము అనగానేమి? ఉదాహరణ ఇవ్వండి.

3. Explain the concept of Aromaticity.
   ఆరోమాటిసిటి భావనను గూర్చి వివరింపుము.

4. Write the mechanism of Friedal Craft's Alkylation reaction.
   ఫ్రీడల్ క్రాఫ్ట్ ఆల్కైలేషన్ చర్యావిధానమును వ్రాయుము.

5. Draw and explain Langmuir adsorption isotherm.
   లాంగ్‌మూర్ అధిశోషణ సమోష్ణరేఖను గీచి, దానిని వివరింపుము.

6. Write the differences between physical and chemical adsorptions.
   భౌతిక మరియు రసాయనిక అధిశోషణాల మధ్య వ్యత్యాసాలను వ్రాయుము.

7. Draw and explain the Molecular Orbital diagram of NO.
   NO యొక్క అణు ఆర్బిటాల్ చిత్రమును గీచి, వివరింపుము.

8. Define enantiomers and diastereomers? Give one example for each.
   ఎనాన్షియోమర్లు మరియు డయాస్టీరియోమర్ లను నిర్వచించి, ఒక్కొక్క దానికి ఒక ఉదాహరణనిమ్ము.

SECTION – B

Answer any **FIVE** of the following. Each question carries TEN marks. **5x10=50M**

9. a) Write the general methods for the preparation of Alkanes.

   ఆల్కేనులను తయారు చేయు సాధారణ పద్ధతులను రాయండి.

   b) Explain physical properties of Alkanes.

   ఆల్కేనుల యొక్క భౌతిక ధర్మాలను వివరించండి.

10. Explain conformational analysis of methyl cyclohexane.

    మిథైల్ సైక్లోహెక్సేన్ యొక్క అనురూపాత్మక సాదృశ్యమును వివరింపుము.

11. Write any three electrophilic and nucleophilic reactions of Alkynes.

    ఆల్కైనుల యొక్క ఏవైనా మూడు ఎలక్ట్రోఫిలిక్ మరియు న్యూక్లియోఫిలిక్ చర్యలను వ్రాయండి.

12. Explain about ring activating and deactivating groups on Benzene with example.

    బెంజీన్ వలయం యొక్క ఉత్తేజక మరియు అనుత్తేజక సమూహాల గురించి ఉదాహరణలతో వివరింపుము.

13. Explain stability of colloids and protection of colloids.

    కొల్లాయిడ్‌ల (కాంజికాభములను) స్థిరత్వము ను మరియు రక్షణ విధానము లను వ్రాయుము.

14. Write the postulates of Valency Bond theory. Explain chemical bond in $Ni(CO)_4$.

    వాలన్సీ బంధ సిద్ధాంతములోని ప్రతిపాదనలను వ్రాయుము. $Ni(CO)_4$లో రసాయన బంధం ఎట్లుండునో వివరింపుము.

15. What is meant by Racemic mixture? Write any two methods for the resolution of Racemic mixture.

    రెసిమిక్ మిశ్రమం అనగానేమి? రెసిమిక్ మిశ్రమములకు విభేదనము చేయు ఏవేని రెండు పద్ధతులను వ్రాయుము.

16. Discuss Optical isomerism of glyceraldehyde and Tartaric acid.

    గ్లిజరాల్డిహైడ్ మరియు టార్టారిక్ ఆమ్లము లలో దృవణ సాదృశ్యము గురించి చర్చింపుము.

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No. of Pages : 01 | Question Paper | No. of Questions : 14

Course Code (s) : 51, 53 | SEM - II | DD/MM/YY : 1 2 0 2 2 0 2 4

Subject : COMPUTER SCIENCE | Paper Code : CSC - 201 | Min Marks : 28

Title of the Paper : Data Structures using 'C'

Time : 3:00 Hrs. | Regd. No : | | | | | | | | Max Marks : 70

SECTION - A

Answer any **FOUR** questions. Each question carries **FIVE** marks. **4x5=20M**

1. Define Complexity? Write the Big 'O' Notation?
2. What is Recursion? Write a program for Recursive Function.
3. Define Queue? Write the applications of Queue.
4. Define Binary Tree? Write the Properties of Binary Trees.
5. Explain the Sequential Representation of Graphs.
6. Explain the Binary Search with example.

SECTION - B

Answer any **FIVE** questions. Each question carries **TEN** marks. **5x10=50M**

7. Explain the Abstract Data Types and Primitive Data Types.
8. Explain the different types of Arrays with example.
9. Define Linked Lists? Write about Basic Linked Lists operations?
10. Define Stack? How do you represent stacks through Arrays?
11. Write the operations on Binary Search Tree.
12. Explain the Binary Tree Traversal Methods.
13. Define Graphs? Explain the Linked Representation of Graphs.
14. What is Sorting? Explain the Merge Sort with Example.

SEE JAN 2024 CHET31A / 12-02-2024

Organic Chemistry & Spectroscopy

No. of Pages: 01 **Roll No:** **Max. Marks: 75M**
Time: 3 Hrs **No. of Questions: 13** **Pass Min.: 30M**

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Section A

Answer any FIVE of the following: 5 x 5 = 25M

1. Summarize the Benzyne mechanism.
2. Explain the mechanism of the pinacol – pinacolone rearrangement.
3. Write a short note on keto – enol tautomerism.
4. Interpret the mechanism for Bayer – Villiger oxidation reaction.
5. Write a short note on acidity of carboxylic acids.
6. Discuss the following: i) chromophore ii) Bathochromicshift
7. Write about over tones and hot bands.
8. Explain the finger print region.

Section B

Answer the following: 5 x 10 = 50M

9. a) Explain the mechanism and stereo chemistry of SN^1 and SN^2 reactions of alkyl halide with examples.

   or

   b) Explain the following reactions with mechanism:
   i) Fries rearrangement ii) Kolhe's – Schmidt reaction

10. a) Describe the following reactions with mechanism:
    i) Aldol condensation ii) Perkin reaction

    or

    b) Write the steps involved in the preparation and any three synthetic applications of ethyl aceto acetate (or) acetoacetic ester.

11. a) Describe the acidic and basic hydrolysis reactions of esters with mechanism.

    or

    b) Explain the following reactions with mechanism:
    i) Hell – Volhard – Zelinsky reaction. ii) Curtius rearrangement

12. a) i) Explain the vibrational degrees of freedom for polyatomic molecules
    ii) Describe the different modes of vibrations & selection rules in IR spectroscopy.

    or

    b) Discuss the following:
    i) Chemical shift ii) Spin – Spin coupling

13. a) Discuss Wood – Ward – Fiescr rules for calculating λmax of conjugated dienes and α, β – unsaturated carbonyl compounds.

    or

    b) i) Write IR spectral data for Aldehyde and ketone.
    ii) List the applications of electronic spectroscopy.

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No. of Pages : 02 | Question Paper | No. of Questions : 16

Course Code (s) : 51 | SEM - I | DD/MM/YY : 1 2 0 2 2 0 2 4

Subject : PHYSICS | Paper Code : PHY - 101 | Min Marks : 28

Title of the Paper : Mechanics, Waves and Oscillations

Time : 3:00 Hrs. | Regd. No : | Max Marks : 70

SECTION - A

Answer any **FOUR** of the following questions. **4x5=20M**

1. Write a short note on Multistage rocket.
   అంచెల రాకెట్‌పై లఘువ్యాఖ్య రాయండి.

2. Write the characteristics of central forces.
   కేంద్రీయ బలాల యొక్క లక్షణాలు రాయండి.

3. Explain Time dilation.
   కాల వ్యాకోచమును వివరించండి.

4. What is quality factor? Explain its importance.
   గుణభాజకము అంటే ఏమిటి? దాని ప్రాముఖ్యతను వివరించుము.

5. Write the applications of Ultrasonic waves.
   అతిధ్వనుల అనువర్తనాలు రాయండి.

6. A rocket burns 0.02 kg of fuel per second, ejecting it a gas with a velocity of 10,000 m/sec. What force does the gas exert on the rocket.
   ఒక రాకెట్‌లో ప్రతి సెకనుకు 0.02 ఇంధనం మండుచున్నది. అట్లా మండిన ఇంధనం వాయు జెట్ రూపంలో 10,000 మీ/సె వేగంతో రాకెట్ నుంచి బయటికి వెడలుచున్నది. అయిన రాకెట్‌పై పనిచేసే ఒత్తిడి ఎంత?

7. If earth is at one half of its present distance from the sun, what will be the number of days in a year?
   భూమికి సూర్యునికి మధ్య గల దూరం ఇప్పుడున్న విలువలో సగానికి కుచించుకుపోతే, సంవత్సరమునకు ఎన్ని రోజులు ఉంటాయి?

8. A stretched string of length 0.25 m has a frequency of 300 Hz in the fundamental mode. Find the velocity of the transverse wave in the string.
   0.25 మీ. పొడవు గల సాగదీసిన తీగలో ప్రధాన పౌన:పున్యం 300 Hz అయితే తీగలో తిర్యక్ తరంగ వేగాన్ని కనుక్కోండి.

SECTION - B

Answer any **FIVE** of the following questions. **5x10=50M**

9. Derive the Newton's second equation of motion of variable mass system.

న్యూటన్ రెండవ నియమం అనుసరించి చర ద్రవ్యరాశి వ్యవస్థ యొక్క వేగమునకు సమీకరణం రాబట్టుము.

10. Define rigid body? Derive an equation of motion for a rotating body?

దృఢ వస్తువు అనగానేమి? భ్రమణం చేస్తున్న దృఢ వస్తువు యొక్క చలన సమీకరణాన్ని రాబట్టుము.

11. Deduce Kepler's first law.

కెప్లర్ మొదటి నియమాన్ని రాబట్టుము.

12. Explain Michelson-Morley experiment and discuss about null result.

మైకెల్సన్-మోర్లే ప్రయోగము వివరించి, శూన్య ఫలితాన్ని చర్చించండి.

13. State the postulates of special theory of relativity. Derive Lorentz transformation equations.

ప్రత్యేక సాపేక్ష సిద్ధాంతము యొక్క ఊహలను వ్రాసి, లారెంట్జ్ రూపాంతర సమీకరణములను ఉత్పాదించుము.

14. Derive equation of motion of the simple harmonic oscillator and its solution.

సరళ హరాత్మక చలనం యొక్క సమీకరణమును రాబట్టి, దాని పరిష్కారం కనుగొనుము.

15. Obtain differential form of equation of damped harmonic oscillator and find its solution.

అవరుద్ధ డోలకం యొక్క చలన సమీకరణాన్ని అవకలనరూపంలో ఉత్పాదించి, దాని పరిష్కారమును కనుగొనుము.

16. Explain the production of ultrasonics by piezo electric method.

అతిధ్వనులను ఉత్పత్తి చేసే పీడన విద్యుత్ పద్ధతిని వివరించండి.

SEE JAN'24

TELT21A/12-02-2024

TELUGU-II

No. of Pages: 1
Time: 3Hrs.
No. of Questions: 16

Roll No.:	

Max. Marks: 75M
Pass Min. : 30M

SECTION - A

క్రింది వానిలో ఐదింటికి సంగ్రహరూప సమాధానాలు వ్రాయండి: 5 × 5 = 25మా

1. జాతీయోద్యమ కవిత్వం.
2. దువ్వూరి రామిరెడ్డి.
3. గురజాడ వేంకట అప్పారావు.
4. కథానిక లక్షణాలు.
5. నవల నిర్వచనాలు.
6. తెలుగు నాటక పరిచయం.
7. విమర్శ ప్రయోజనం.
8. యక్షగానం – పరిచయం.

SECTION - B

క్రింది వానిలో ఐదింటికి వ్యాసరూప సమాధానాలు వ్రాయండి. 5 × 10 = 50మా

9. "కొండవీడు" పాఠ్యాంశం ద్వారా కవి సందేశాన్ని వివరించండి.
10. "కన్యక" పాఠ్యభాగ సారాంశాన్ని విశ్లేషించండి.
11. "భయం" కథ ద్వారా కవి చెప్పదలచిన భావాలను తెల్పండి.
12. "రథ చక్రాలు" నవల సారాంశాన్ని వ్రాయండి.
13. తెలుగు నాటకాన్ని గురించి వివరంగా తెల్పండి.
14. ఉత్తమ విమర్శకుని లక్షణాలను వ్రాయండి.
15. "స్వేదం ఖరీదు" పాఠ్యభాగ సారాంశాన్ని తెల్పండి.
16. యక్షగాన స్వరూప స్వభావాలను వివరించండి.

SEE JAN'24

HINT21A/12-02-2024

No. of Pages: 1
Time: 3Hrs.
No. of Questions: 13

Roll No.:	

Max. Marks: 75M
Pass Min. : 30M

Note: Answer all the sub questions Q.P.No.11 & 12 at one place in the Answer Booklet in the order given in Question Paper.

PART-A

I. *निम्न लिखित प्रश्नों में से किन्ही पाँच प्रश्नों का उत्तर दीजिए:-* 5 X 5 = 25M

1. भारत की मध्यकालीन संस्कृति कैसी रही है ?
2. रामायण और महाभारत से क्या शिक्षा प्राप्त होती है ?
3. भारत की भाषा भेद की समस्या का परिचय दीजिए ?
4. एच.आय.वी / एड्स के लक्षणों पर प्रकाश डालिए ?
5. 'जरिया' कहानी का उद्देश्य क्या है ?
6. 'परमात्मा का कुत्ता' कहानी में सामाजिक अंश का उल्लेख कीजिए ।
7. संधि की परिभाषा और उसके भेद बताइए ?
8. अनुवाद किसे कहते है ?

PART-B

II. *निम्न लिखित प्रश्नों का उत्तर दीजिए:-* 5 X 10 = 50M

9. अ) 'भारत एक है' निबंध का सारांश लिखिए ।

अथवा

आ) 'संस्कृति और साहित्य का परस्पर संबंध' बताइए ।

10. अ) 'भूख हडताल' कहानी का सारांश लिखिए ।

अथवा

आ) 'परमात्मा का कुत्ता' कहानी का सारांश लिखिए ।

11. अ) अंग्रेजी से हिन्दी में अनुवाद कीजिए ।

1. Court 2. Hospital 3. Post office 4. Labour office 5. Library

अथवा

आ) हिन्दी से अंग्रेजी में अनुवाद कीजिए ।

1. लेखाकार 2. निर्देशक 3. बच चालक 4. वन रक्षक 5. प्राध्यापक

12. अ) किन्ही पाँच शब्दों को वाक्यों में प्रयोग कीजिए । 5 X 1 = 5M

(1) हवन (2) पथ-प्रदर्शक (3) चिरस्थायी (4) बसर करना (5) विरासत
(6) इकट्ठा करना (7) आद्यंत (8) तिनके का सहारा

अथवा

आ) किन्ही पाँच शब्दों को संधि-विच्छेद कीजिए । 5 X 1 = 5M

(1) अन्नाभाव (2) देवेश (3) एकैक (4) यद्यपि (5) नयन (6) प्रत्येक (7) महाशय (8) महेश्वर

13. अ) लिपिक (कलर्क) पद केलिए आवेदन पत्र लिखिए ।

अथवा

आ) हिन्दी प्राध्यापक की नौकरी केलिए प्रधानाचार्य के नाम पत्र लिखिए ।

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No. of Pages : 02 | Question Paper | No. of Questions : 16

Course Code (s) : 53 | SEM - I | DD/MM/YY : 13/02/2024

Subject : CHEMISTRY | Paper Code : CHE - 101 | Min Marks : 28

Title of the Paper : Inorganic & Physical Chemistry

Time : 3:00 Hrs. | Regd. No : | Max Marks : 70

SECTION - A

Answer any **FOUR** of the following questions. **4x5=20M**

1. What is a polymer? Give the comparison of organic polymer with inorganic polymers.
పాలిమర్ అనగానేమి? కర్బన మరియు అకర్బన పాలిమర్‌ల మధ్య గల పోలికలను ఇవ్వండి.

2. What are 'd'-block elements? Write the electronic configuration of d-block elements.
'd'-బ్లాకు మూలకాలు అనగానేమి? d-బ్లాకు మూలకాల యొక్క ఎలక్ట్రాన్ విన్యాసాన్ని గూర్చి వ్రాయుము.

3. What is Lanthanide contraction? Explain the consequences of Lanthanide contraction.
లాంథనైడ్ సంకోచము అనగానేమి? లాంథనైడ్ సంకోచము యొక్క ప్రభావము ఏవిధంగా వుంటుందో వివరింపుము.

4. Give electronic configuration and oxidation states of Actinides.
ఆక్టినైడుల యొక్క ఎలక్ట్రాను విన్యాసము మరియు ఆక్సీకరణ స్థితులను గూర్చి తెల్పండి.

5. Define law of constancy of interfacial angles and miller indices with examples.
అంతర్ తల స్థిరకోణ నియమము మరియు మిల్లర్ సూచికలను నిర్వచించి, ఉదాహరణ లను తెల్పుము.

6. Derive Nernst distribution law and write it's application.
నెర్నెస్ట్ వితరణ నియమమును ఉత్పాదించి మరియు వాటి యొక్క అనువర్తనము లను వ్రాయుము.

7. What are colligative properties? Explain Beckmann's experimental method.
కణాధార ధర్మాలు అనగానేమి? బెక్మన్ ప్రయోగ పద్ధతి వివరింపుము.

8. Define common ion effect and solubility product with examples.
ఉమ్మడి అయాన్ ప్రభావము మరియు ద్రావణీయతా లబ్ధం లను నిర్వచించి, ఉదాహరణలను ఇవ్వండి.

SECTION - B

Answer any **FIVE** of the following questions. **5x10=50M**

9. Write any two preparative methods and two applications of Borazines and silicates.

బోరజైన్ మరియు సిలికేట్‌ల యొక్క ఏవైనా రెండు తయారీ పద్ధతులను మరియు రెండు అనువర్తనాలను వ్రాయుము.

10. What are Interhalogen compounds? Explain their structures.

అంతర హాలోజన్ సమ్మేళనాలు అనగానేమి? వాటి నిర్మాణాలను గూర్చి వివరించండి.

11. Explain magnetic and catalytic properties of 'd'-block elements.

d-బ్లాకు మూలకాల యొక్క అయస్కాంత మరియు ఉత్ప్రేరక ధర్మాలను గూర్చి వివరింపుము.

12. Explain the defect's in Crystals.

స్ఫటిక నిర్మాణాల లోని లోపాలను గూర్చి వివరింపుము.

13. Derive vander waal's equation.

వాండర్‌వాల్ సమీకరణమును ఉత్పాదించుము.

14. What are Liquid Crystals? Give the classification and applications of Liquid Crystals.

ద్రవస్ఫటికాలు అనగానేమి? ద్రవస్ఫటికాల యొక్క వర్గీకరణము మరియు వాటి అనువర్తనాలను తెల్పండి.

15. Give the classification of liquid mixtures with examples and explain phenol- water system.

ద్రవ మిశ్రమాల యొక్క వర్గీకరణమును తెలిపి వాటికి ఉదాహరణలిమ్ము. ఫీనాల్–నీరు వ్యవస్థను గూర్చి వివరింపుము.

16. Define Osmotic pressure and explain the experimental procedure of Berkely- hartley method.

ద్రవాభిసరణ పీడనమును నిర్వచించి మరియు బర్క్‌లీ హార్ట్లీ ప్రయోగ పద్ధతిని వివరింపుము.

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No. of Pages : 01 | Question Paper | No. of Questions : 14

Course Code (s) : 51 | SEM - I | DD/MM/YY : 13/02/2024

Subject : COMPUTER SCIENCE | Paper Code : CSC - 101 | Min Marks : 28

Title of the Paper : Problem Solving in 'C'

Time : 3:00 Hrs. | Regd. No : | Max Marks : 70

SECTION – A

Answer any **FOUR** questions. Each question carries **FIVE** marks **4X5=20M**

1. Write the characteristics of computers.
2. Explain the Data types in C.
3. Explain compiling and Executing C programs.
4. Define Array? Explain Accessing elements of Array.
5. Explain storage classes in C.
6. Define Variables and printers in C?

SECTION – B

Answer any **FIVE** questions. Each question carries **TEN** marks **5X10=50M**

7. Explain structure of C programming.
8. Define types of computers and Applications of computers?
9. Briefly explain Break and Continue with example programs.
10. Explain operators in C.
11. Define multi - dimensional Arrays with example program.
12. Briefly explain call-by value and cell by Reference with examples.
13. Explain Difference between structures and Unions.
14. Define files in C? Briefly explain Reading Data from files and writing Data to files.

SEE-JANUARY 2024 HIST21B/ 13-02-2024

Medieval Indian History & Culture (1206 A.D. to 1764 A.D.)

No. of Pages: 01 **Roll No:** **Max. Marks: 75M**
Time: 3 Hrs **No. of Questions: 13** **Pass Min.: 30M**

****

Section A

Answer any FIVE of the following: 5 x 5 = 25M

1. Mohammad Gazani.
2. Sultana Razia.
3. Muhammad – Bin – Tughluq.
4. Bhakti Movement.
5. First Battle of Panipat.
6. Humayun.
7. Tajmahal.
8. Portugese.

Section B

Answer the following: 5 x 10 = 50M

9. a) Describe the invasion of Mohammad Ghorie.

or

b) What are the reforms introduced by Allauddin Khilzi.

10. a) Write an essay on Sufism.

or

b) Explain the greatness of Sri Krishna Devaraya.

11. a) Discuss the Sharshah administration system.

or

b) Write about life and achievements of Akbar.

12. a) What were the causes led to the downfall of Mughal Empire?

or

b) Describe Shivaji administration.

13. a) Write an essay on European powers.

or

b) What are the causes and results of Carnatic Wars.

* * *

SEE JAN'24 **MATT21B/13-02-2024**

REAL ANALYSIS

No. of Pages: 2	**Roll No:**	**Max. Marks: 75M**
Time: 3Hrs		**Pass Min: 30M**
No. of Questions: 13		

SECTION – A

Answer any FIVE of the following: ***5 X 5 = 25M***

1. State and prove Sandwich theorem.
2. If $S_n = \frac{1}{1.2} + \frac{1}{2.3} + \ldots\ldots + \frac{1}{n(n+1)}$ then show that $\langle S_n \rangle$ is convergent sequence.
3. Test for convergence of $\sum \frac{2^n}{n^n} n!$.
4. If $f(x) = x\,Sin\frac{1}{x}$ for $x \neq 0$ and $f(0) = 0$ then find the continuity at x = 0.
5. Prove that every continuous function is bounded on [a, b].
6. Verify Rolle's theorem $f(x) = \log\left[\frac{x^2 + ab}{x(a+b)}\right]$ for all $x \in [a,b]$.
7. Show that $x < e^x - 1 < \frac{x}{1-x}$ for $0 < x < 1$.
8. Prove that $|f| \in R[a,b]$ if $f \in R[a,b]$.

SECTION – B

Answer the following: ***5 X 10 = 50M***

9. (a) State and prove monotone convergence theorem.

   OR

   (b) State and prove Cauchy's general principle of convergence for sequence.

10. (a) State and prove Cauchy's n^{th} root test.

    OR

    (b) State and prove Leibnitz's test.

Contd...(2)

11. (a) If $f(x)=\frac{Sin(a+1)x+Sin\,x}{x}$ for $x<0$ $f(0)=c$ and $f(x)=\frac{\left(x+bx^2\right)^{1/2}-x^{1/2}}{bx^{3/2}}$ for $x>0$, then find the values of a,b and c.

OR

(b) Prove that every continuous function on [a,b] is uniformly continuous on [a,b].

12. (a) State and prove Rolle's theorem.

OR

(b) State and prove Cauchy's mean value theorem.

13. (a) State and prove fundamental theorem of integral calculus.

OR

(b) State and prove first mean value theorem of Riemann integral.

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SEE JAN 2024 COMT21A / 13-02-2024

Financial Accounting

No. of Pages: 02 Roll No: Max. Marks: 75M
Time: 3 Hrs No. of Questions: 13 Pass Min.: 30M

SECTION – A

Answer any FIVE of the following: 5 x 5 = 25 M

1. What is Diminishing Balance Method? Explain its Uses.
2. Explain the different types of Reserves.
3. Define a bill. State any four features of bills of exchange.
4. How is a Proforma invoice different from an invoice?
5. Distinguish between Joint Venture and Consignment.
6. What are the objectives of providing depreciation?
7. What is Over-riding commission?
8. Define Joint Venture and explain its features.

SECTION – B

Answer all Questions 5 x 10 = 50 M

9. i. Explain the meaning and causes of depreciation. What are the factors effecting the amount of depreciation?

OR

ii. M/s Mukund Industries purchased a machine on 1st April, 2012 for Rs.1,50,000. Paid installation charges Rs. 60,000 and labour charges Rs. 10,000. Another machine costing Rs. 80,000 was purchased on 1st October, 2013. On October 1st 2014, a portion of machine - I (Value ¼ of machine) was sold for Rs. 60,000. Depreciation is charged at 20% under written-down value method. Show the Machinery Account for 4 years with necessary workings.

10. i. What are provisions? How are they created? Give accounting treatment in case of provision for doubtful Debts.

OR

ii. The following information is extracted from the Trial balance of M/s Nisha Traders on 31st March 2015.

Sundry debtors	Rs. 80,500
Bad debts	Rs. 1,000
Provision for Bad debts	Rs. 5,000

Additional Information:

Bad debts Rs. 500.

Provision is to be maintained at 2% of Debtors.

Prepare Bad Debts account, Provision for Bad debts account and Profit and loss account.

11. i. What is a bill of exchange and Who are the parties to it? Give any five differences between bill of exchange and promissory note.

OR

ii. On December 1st 2014, Ramu sold goods to Deepu worth Rs. 50,000 for which he drew a bill payable after 3 months. The bill was duly accepted by Deepu and then discounted by Ramu with his bank for Rs. 49,500. On maturity, the bill was dishonoured and taken up by Ramu who had to pay Rs. 200 as noting charges. Deepu then accepted a new bill for Rs. 50,500 (including Rs. 300 for interest) payable after 2 months. Pass necessary entries in the books of both the parties.

12. i. What is Consignment? Explain the difference between Consignment and Sale.

OR

ii. Mazda & Co. of Bangalore consigned goods to Ram and Bros of Lucknow of the value of Rs. 5000 and invoiced the same Proforma at 20% above cost. They paid thereon Rs. 120 for freight and cartage and Rs. 80 for insurance. They drew on Ram & Bros for Rs. 2000 as advance against the consignment and sold the bill for Rs. 1,950. They received account sales showing that three-fourth of the goods were sold for Rs. 5,200 and Ram & Bros expenses amounted to Rs. 175 and their commission to Rs. 300. The unsold stock was valued at actual cost and a two months draft was received from Ram & Bros in settlement of account to date. Prepare Ledger accounts in the books of Both the parties.

13. i. What do you meant by Joint venture? How do you maintain the Books of Accounts in case of Joint Venture?

OR

ii. A and B enter into a joint venture, agreeing to share profits and losses in proportion of $4/5^{th}$ and $1/5^{th}$ respectively. A supplies goods to the value of Rs. 5,000 and incurs expenses amounting to Rs. 400. B supplies goods to the value of Rs. 4,000 and his expenses amount to Rs. 300. B sells goods on behalf of the joint venture for Rs. 12,000 charging commission @ 5% of value realised. The amount due is settled by bank draft. Show the necessary accounts in the books of both the parties.

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SEE-JANUARY 2024 POLT21B / 14-02-2024

BASIC ORGANS OF THE GOVERNMENT

No. of Pages: 01 **Roll No:** **Max. Marks: 75M**
Time: 3 Hrs **No. of Questions: 13** **Pass Min.: 30M**

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Section A

Answer any FIVE of the following: 5 x 5 = 25M

1. Explain the merits of Written Constitution.
2. Define the constitution.
3. Checks and Balance system.
4. Explain advantages of the Bicameral System.
5. Features of unitary form of Government.
6. Parliamentary Government.
7. Indirect democracy.
8. National parties.

Section B

Answer the following: 5 x 10 = 50M

9. a) Explain the origin and evaluation of the Constitution.

   or

   b) Write about the rigid, flexible constitution.

10. a) Critically explain the theory of separation of powers.

    or

    b) Explain the powers and functions of Judiciary.

11. a) Explain about merits and demerits of unitary form of Government.

    or

    b) Write an essay on advantages and disadvantages of presidential form of Government.

12. a) Define democracy and merits and demerits of democracy.

    or

    b) Explain the essential conditions for the success of democracy.

13. a) Explain the functions of Regional Parties.

    or

    b) Explain importance of Pressure groups.

* * *

SEE JAN 2024 CABT24 / 14-02-2024

E – Commerce & Web Designing

No. of Pages: 01	**Roll No:**	**Max. Marks: 75M**
Time: 3 Hrs	**No. of Questions: 13**	**Pass Min.: 30M**

SECTION - A

Answer any FIVE of the following: 5 X 5 = 25 M

1. Difference between commerce and E commerce
2. What is E Commerce? Explain advantages of Ecommerce
3. What are the benefits and goals of E-SCM?
4. Explain different typesof EPS?
5. Explain formatting tags in HTML with example
6. Explain List tags in HTML with example
7. How to adding link to a button
8. How to Reordering Menu Items to your website?

SECTION - B

Answer the following: 5 X 10 = 50 M

9. a) Explain various Business Models for E Commerce
   (or)
   b) Explain EDI

10. a) Explain E CRM Architectural components
    (or)
    b) Explain various types of Online Marketing

11. a) Write steps in electric payment
    (or)
    b) Write about different electronic payment systems

12. a) Explain Table tag with an example in HTML
    (or)
    b) Create a form tag in HTML using various input fields

13. a) How to add image and logo to your site?
    (or)
    b) How do you Add a video from YouTube and retrieve a YouTube URL

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SEE JAN 2024 CECT21A / 14-02-2024

Information Technology

No. of Pages: 01	**Roll No:**	**Max. Marks: 75M**
Time: 3 Hrs	**No. of Questions: 13**	**Pass Min.: 30M**

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Section A

Answer any FIVE of the following: 5 x 5 = 25M

1. What is computer? Explain its characteristics.
2. Define operating system. What are the functions of operating system?
3. What is memory? Explain types of memory.
4. What is application software and system software?
5. Explain about wildcard characters.
6. Explain about internet, intranet and extranets.
7. Explain the steps involved in the process of KDD.
8. Explain data warehouse.

Section B

Answer the following: 5 x 10 = 50M

9. a) Explain the block diagram of a computer.

   or

   b) Explain different types of input/output devices.

10. a) What is operating system? Explain its types.

    or

    b) Explain DOS internal & external commands.

11. a) Explain types of personal application software.

    or

    b) Explain different types of programming languages.

12. a) Explain different types of networks.

    or

    b) Define the various types of communication media and channels.

13. a) Demonstrate On Line Analytical Process(OLAP)

    or

    b) Explain about Artificial Intelligence & Business Intelligence.

* * *

SEE JAN'24 **STAT21C/14-02-2024**

PROBABILITY DISTRIBUTIONS AND STATISTICAL METHODS

No. of Pages: 2	**Roll No:**	**Max. Marks: 75M**
Time: 3Hrs		**Pass Min: 30M**
No. of Questions: 13		

SECTION – A

Answer any FIVE of the following: ***5 X 5 = 25M***

1. Obtain mean and variance of rectangular distribution.
2. In a book of 520 pages, 390 typo-graphical errors occur. Assuming Poisson law for the no.of errors per page, find the probability that a random sample of 5 pages will contain no error.
3. Write the properties of Normal distribution.
4. Derive M.G.F. & C.G.F. for Gamma distribution.
5. Define: (i) Dictotony classification (ii) Class frequencies.
6. Explain the types of correlation.
7. Explain the fitting of straight line.
8. Prove that Regression coefficient is independent of origin but not scale.

SECTION – B

Answer the following: ***5 X 10 = 50M***

9. (a) Define Poisson distribution and derive its mean and variance through moments.

   OR

   (b) Ten coins are tossed simultaneously. Find the probability of getting (i) At least seven heads (ii) Exactly seven heads (iii) Almost seven heads.

10. (a) Show that mean, median and mode are equal in Normal distribution.

    OR

    (b) State and prove lack of memory property of exponential distribution.

11. (a) What is consistency of data? Write the conditions for consistency of data.

    OR

    (b) (i) Prove that the relation between association and colligation is $Q = \frac{2y}{1+y^2}$.

    (ii) In a co-education institution out of 200 students, 150 were boys. In an examination 120 boys and 40 girls passed. Apply Yule's coefficient to determine the association between sex and success in the examination. Interpret your result.

Contd...(2)

12. (a) Calculate correlation coefficient to the following data:

X:	10	15	12	17	13	16	24	14	22	20
Y:	30	42	45	46	33	34	40	35	39	38

OR

(b) What is rank correlation? Prove that rank correlation lies in between -1 and +1.

13. (a) Derive the regression equation of Y on X.

OR

(b) Fit a second degree parabola for the following data:

x:	0	1	2	3	6
y:	1	1.8	1.3	2.5	6.3

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SEE JAN 2024 PHYT21C / 14-02-2024

Wave Optics

No. of Pages: 02	**Roll No:**	**Max. Marks: 75M**
Time: 3 Hrs	**No. of Questions: 14**	**Pass Min.: 30M**

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Section A

Answer the following: 5 x 10 = 50M

1. a) Describe Fresnel's Bi – Prism experiment.

   or

   b) Describe the construction and working of a Michelson interferometer. How is wave length of light determined with it?

2. a) Describe with necessary theory, how the wavelength of monochromatic light is determined using a plane diffraction grating. What is the expression for its resolving power?

   or

   b) Explain the term "half period zone". Calculate the area of a Fresnel zone and show the amplitude due to a complete wave front at a point is just half due to the first half period zone acting alone.

3. a) What is meant by polarized light? How is polarized light produced by reflection? Write short note on Malus & Brewster's law.

   or

   b) What is specific rotation? Describe how specific rotation of sugar solution can be determined experimentally.

4. a) What is spherical aberration? Discuss the various methods to minimize it.

   or

   b) Describe different types of fibers.

5. a) Distinguish spontaneous emission and stimulated emission. Explain the construction and working of He – Ne laser with a neat diagram.

   or

   b) Explain the basic principle of holography and write the applications of holography.

Section B

Answer any THREE of the following: 3 x 5 = 15M

6. Discuss the important conditions for interference of light.
7. Disinction between Fresnel and fraunhofer diffraction.
8. What is a quarter wave plate? What is its use?
9. Write a note on Astigmatism.
10. Define different Einstein coefficients.

Contd.....(2)

Wave Optics

Section C

Answer any TWO of the following: **2 x 5 = 10M**

11. It is desired to make a converging achromatic lens of mean focal length 30cm by using two lenses of materials A and B. If the dispersive powers of A and B are in the ratio 1:2, find the focal length of each lens.
12. In a Newton's ring experiment the diameter of the 10^{th} ring changes from 1.40 cm to 1.27 cm when a liquid is introduced between the lens and the plate. Calculate the refractive index of the liquid.
13. A grating has 15cm of the surface ruled with 6,000 lines per cm. what is the resolving power of grating in the first order.
14. Calculate the thickness of a mica sheet required for making a quarter wave plate $\lambda = 5460A^0$. The indices of refraction for the ordinary and extra ordinary rays in mica are 1.586 and 1.592.

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SEE-JANUARY 2024 ECOT21B /15-02-2024

MACRO ECONOMIC ANALYSIS

No. of Pages: 01	**Roll No:**	**Max. Marks: 75M**
Time: 3 Hrs	**No. of Questions: 13**	**Pass Min.: 30M**

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Section A

Answer any FIVE of the following: 5 x 5 = 25M

1. Circular flow of income.
2. RBI classification of money.
3. Measurements of Inflation.
4. Explain the Gresham's Law.
5. State the relationship between APC, APS, MPC and MPS.
6. Bombay Stock Exchange.
7. Types of Insurance.
8. Explain measurement methods of National Income.

Section B

Answer the following: 5 x 10 = 50M

9. a) Explain definition, scope and importance of macro economics.

   or

   b) Define National Income and explain the various concepts of National Income.

10. a) Critically examine the Keyne's theory of employment.

    or

    b) Explain the working process of multiplier.

11. a) Explain the functions of commercial banks.

    or

    b) Explain the Fisher's Quantity theory money.

12. a) Explain types of inflation.

    or

    b) Explain the different types of phases of trade cycles.

13. a) Explain functions of money market.

    or

    b) Explain functions of stock exchange.

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SEE-JANUARY 2024 ECOT22B /15-02-2024

BUSINESS ECONOMICS

No. of Pages: 01	**Roll No:**	**Max. Marks: 75M**
Time: 3 Hrs	**No. of Questions: 13**	**Pass Min.: 30M**

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Section A

Answer any FIVE of the following: 5 x 5 = 25M

1. Wealth definition.
2. Demand function.
3. Determinants of demand.
4. Cost function.
5. Cobb-Douglas production function.
6. Kinky demand curve.
7. Features of monopolistic competition market.
8. Gross National Product.

Section B

Answer the following: 5 x 10 = 50M

9. a) Write about the scarcity definition.

   or

   b) Explain nature and scope of business economics.

10. a) Explain the types of price elasticity of demand.

    or

    b) Discuss about the law of supply.

11. a) Explain the law of variable proportions.

    or

    b) Discuss about short run cost curves.

12. a) Explain classification of markets.

    or

    b) Explain the price determination under monopoly.

13. a) Discuss about National Income measurement methods.

    or

    b) Write about phases of trade cycle.

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SEE JAN 2024 CECT22A / 15-02-2024

Computer Applications

No. of Pages: 01 Roll No: Max. Marks: 75M
Time: 3 Hrs No. of Questions: 13 Pass Min.: 30M

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SECTION-A

Answer ANY FIVE QUESTIONS **5x5M=25M**

1. Explain about Inserting Symbols and Shapes in MS-Word.
2. Write about Headers and Footers.
3. Explain about Slide Transition.
4. Explain about number functions in Excel
5. Explain about Data Sort in Excel.
6. How to create a database in Ms-Access
7. Explain about Chart Wizard.
8. Write about Reports.

SECTION-B

ANSWER THE FOLLOWING QUESTIONS **5X10M=50M**

9. (a) Explain Features of MS-Word.

(OR)

(b) Explain the Mail Merge Procedure.

10. (a) How to Resizing and Scaling of an object.

(OR)

(b) Explain about the Custom Animation.

11. (a) Explain different types of Charts in Excel.

(OR)

(b) Explain different types of functions in Excel.

12. (a) Explain form wizard using Design view.

(OR)

(b) Explain Features of MS Access?

13. (a) What is Query? How to creating and using select queries.

(OR)

(b) Explain about Multilevel sorts.

SEE-JANUARY 2024 CSCT21B=CGST21 /15-02-2024

DATA STRUCTURES

No. of Pages: 01	**Roll No:**	**Max. Marks: 75M**
Time: 3 Hrs	**No. of Questions: 13**	**Pass Min.: 30M**

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Section A

Answer any FIVE of the following: 5 x 5 = 25M

1. What is an ADT? Explain with an example.
2. Explain different approaches to designing an algorithm.
3. Difference between linked lists and arrays.
4. Explain about applications of stacks.
5. Explain representation of queues.
6. Write about properties of binary trees.
7. Write about linear search program.
8. Write about applications of graphs.

Section B

Answer the following: 5 x 10 = 50M

9. a) Discuss about abstract data types, data types and data structures.

   or

   b) Explain about Big 'O' notation in detail.

10. a) Define linked list. Write a program for single linked list operations.

    or

    b) Explain doubly linked list and its operations.

11. a) Define stack. Explain how to represent stack using arrays.

    or

    b) Explain different types of queues and their operations.

12. a) Explain binary Tree Traversing Techniques.

    or

    b) What are the operations on Binary Search Tree.

13. a) Explain bubble sort with an example.

    or

    b) Explain about Breath First Search (BFS) with an example.

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SEE JAN 2024 CHET21A / 16-02-2024

Organic & General Chemistry

No. of Pages: 01	**Roll No:**	**Max. Marks: 75M**
Time: 3 Hrs	**No. of Questions: 13**	**Pass Min.: 30M**

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Section A

Answer any FIVE of the following: **5 x 5 = 25M**

1. Write different conformations of n – butane. Explain their relative stability.
2. Write about Diels – Alder reaction.
3. What is ozonolysis? Explain with an example.
4. What is Huckel's rule? Explain with any 2 examples.
5. Explain the structure of ClF_3 by valency bond theory.
6. Give any five differences between physical and chemical adsorption.
7. Explain the mechanism of Friedel crafts alkylation in benzene.
8. Define enantiomers and diastereomers and give two examples for each.

Section B

Answer the following: **5 x 10 = 50M**

9. a) i) Explain the stability of cyclo alkanes according to Baeyer strain theory.
   ii) Write about the conformations of cyclo hexane.

   or

   b) i) Explain the preparation of alkanes by Wurtz fitting and Corey – House synthesis.
   ii) Explain the reactivity and selectivity in free radical substitutions.
10. a) Explain Markownikoff's and Anti-Markownikoff's rule with mechanisms.

    or

    b) i) Explain the acidity of 1 – alkynes.
    ii) Write a note on 1,2 and 1,4 – addition reactions in conjugated dienes.
11. a) Explain the mechanisms of nitration and Friedal – craft's acylation of benzene.

    or

    b) What are ortho, para and meta directing groups? Explain the effect of these directing groups in electrophilic substitution reactions of benzene.
12. a) What is adsorption? Explain Langmuir adsorption isotherm. Write any four applications of adsorption.

    or

    b) Draw the molecular orbital energy level diagram for O_2 and No molecules. Give their bond order and magnetic nature.
13. a) i) Define optical activity & specific rotation.
    ii) Give an account of R,S and E,Z configuration with suitable examples.

    or

    b) What is racemic mixture? Explain the methods for the resolution of racemic mixture.

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M.Sc. (Computer Science) DEGREE EXAMINATIONS – MARCH 2024
THIRD SEMESTER

POLYMER CHEMISTRY (Open Elective)

Time: 3 Hours | Max. Marks: 70

SECTION-A

Answer the following: 5 X 4 = 20 M

1. (a) Write about classification of polymers.
   Or
   (b) What is Copolymerization? Explain.

2. (a) Explain the method of purification of polymers.
   Or
   (b) Describe a method for the synthesis of polymers.

3. (a) "Cross linking of a polymer reduces its strength". Elucidate with an example.
   Or
   (b) Discuss acidolysis with an example.

4. (a) What is polymer degradation? Explain.
   Or
   (b) Give a short account of polymer degradation by ultrasonic waves.

5. (a) What are resins? Explain.
   Or
   (b) Illuminate the role of polymerization in synthetic fibres with an example.

SECTION–B

Answer the following: 5 X 10 = 50 M

6. (a) Elaborate the following polymerization methods with suitable examples and appropriate mechanism
   (i) Free radical (ii) Cationic
   Or
   (b) Give an account of the following with suitable examples.
   (i) Step polymerization copolymers (ii) Anionic polymerization (iii) Graft & Block Copolymers

7. (a) Write about the following:
   (i) Isolation of polymers (ii) Polymer fractionation
   Or
   (b) Discuss the following with necessary theory.
   (i) Molecular weight determination (ii) Processing techniques

8. (a) Elucidate the following polymer reactions with suitable theory & examples.
   (i) Hydrolysis (ii) Aminolysis
   Or
   (b) Give a detailed account of Addition & Substitution type polymer reactions.

9. (a) Explain the role of the following degradation methods.
   (i) Degradation by high energy radiation (ii) Oxidative degradation
   Or
   (b) Enumerate the role of the following degradation methods.
   (i) Mechanical degradation (ii) Photo degradation.

10. (a) Give an account of the following: (i) Polystyrene (ii) Polyvinyl chloride.
    Or
    (b) Write about the following: (i) Melamine-Formaldehyde resins (ii) Polyacrylontrile.

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M.Sc. (Organic Chemistry) DEGREE EXAMINATIONS – MARCH 2024

THIRD SEMESTER

OFFICE TOOLS (Open Elective)

Time: 3 Hours | Max. Marks: 70

SECTION- A

Answer the following: 5 X 4 = 20 M

1. a) Explain the advantages of MS-Word.
   Or
   b) Write about Text formatting styles in MS-Word.
2. a) List different Chart Styles.
   Or
   b) Explain how to insert an audio clip in presentation.
3. a) What is Conditional Formatting in Excel?
   Or
   b) How to increase and decrease the Row height?
4. a) Explain different Data Maps and Graphs.
   Or
   b) Define macro.
5. a) What are the advantages of MS-Access?
   Or
   b) What is a query? Explain.

SECTION-B

Answer the following: 5 X 10 = 50 M

6. a) Create a Certificate in MS-Word using different Formatting Styles.
   Or
   b) Write the steps to create a Time Table using Table Options.
7. a) Prepare a presentation of 10 slides explaining the features of College.
   Or
   b) Explain Custom Animation and Slide Transition.
8. a) What is Cell referencing? How many types of Cell referencing are available?
   Or
   b) Explain any 5 functions used in Excel.
9. a) How to create macros? Explain with an example.
   Or
   b) Explain Data Sorting and Filtering in Excel.
10. a) What is a Database? How to create a table in MS-Access?
    Or
    b) What is a Query? Explain Cross tab Queries.

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M.Sc. (Organic Chemistry) DEGREE EXAMINATIONS – MARCH 2024
THIRD SEMESTER

ORGANIC SPECTROSCOPY

Time: 3 Hours Max.Marks: 70

SECTION–A

Answer the following: 5 X 4 = 20 M

1. (a) Write about chromophores and Auxochromes.
   Or
   (b) Write an explanation regarding the bands observed in the UV-visible spectrum.

2. (a) Analyse the infrared (IR) values of aromatic compounds.
   Or
   (b) Discuss the fundamental modes of vibrations.

3. (a) Elucidate the concept of Larmor's frequency.
   Or
   (b) Provide an explanation of spin-spin interactions in PMR spectroscopy.

4. (a) Explain the importance of nitrogen rule.
   Or
   (b) Write about metastable peak.

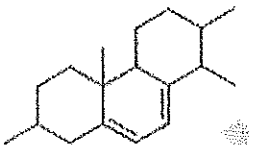
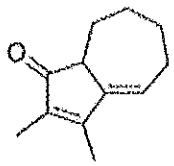
5. (a) Determine the expected magnitudes of the molecular ion peak, M + 2, M + 4, and M + 6 for a compound that consists of two bromine atoms and one chlorine atom.
   Or
   (b) Explain Stevenson's rule

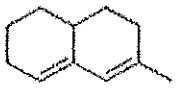
SECTION-B

Answer the following: 5 X 10 = 50 M

6. (a) (i) Provide a concise explanation of the UV absorption properties of alkenes and unsaturated cyclic systems.

   (ii) Calculate the λ Max of the following compounds.



   Or
   (b) (i) Present a note on the acid-base influences observed in the UV-visible spectrum.

   (ii) Write about UV absorption of aromatic systems.

7. (a) How do you distinguish the following pairs of compounds by using IR spectroscopy.

   (i) Mallic acid and fumaric acid. (ii) CH_3CH_2CHO and CH_3COCH_3.

   (iii) Benzene and Cyclohexane

   Or
   (b) Discuss about factors effecting vibrational frequency.

8. (a) (i) Explain Chemical shift interactions and its factors in PMR.

(ii) The proton magnetic resonance (pmr) spectrum of a compound with the molecular formula C_4H_8O displays peaks at δ 1.2 (triplet, 3 hydrogen atoms), 2.1 (singlet, 3 hydrogen atoms), and 2.4 (quartet, 2 hydrogen atoms). Analyse the above data to ascertain the molecular structure of the organic compound.

Or

(b) (i) Explain Relaxation effect in NMR Spectroscopy.

(ii) Write about Factors effecting of J value.

9. (a) Write a note on Instrumentation of mass spectrometry.

Or

(b) Discuss about MALDI and FAB with advantages and disadvantages.

10. (a) (i) Provide an explanation of the Mc' Lafferty Rearrangement, including illustrative examples.

(ii) Write about Retro Dielarlder Clevage.

Or

(b) (i) How do you distinguish the 1^0,2^0,3^0 alcohols by using mass spectrum?

(ii) Describe the process of mass spectral fragmentation in Butyl Propyl Ether.

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M.Sc. (Computer Science) DEGREE EXAMINATIONS – MARCH 2024

THIRD SEMESTER

DATA SCIENCE

Time: 3 Hours Max. Marks: 70

SECTION –A

Answer the following: 5 X 4 = 20 M

1. (a) How to add a Tableau workbook to another workbook?
   Or
   (b) Which feature in Tableau allows us to combine data from multiple data sources? Explain.

2. (a) Can we select multiple values while filtering using a parameter in Tableau?
   Or
   (b) How to link two parameters in Tableau?

3. (a) Describe geocode in Tableau.
   Or
   (b) What is a geo map in Tableau?

4. (a) Explain Functions used in Power Bi
   Or
   (b) How many types of connections are possible on data source in Power BI?

5. (a) How do you create a relationship between two tables in Power Pivot?
   Or
   (b) Describe the advantages of Dashboard.

SECTION-B

Answer the following: 5 X 10 = 50 M

6. (a) Explain Shape and Label Options and Formatting Options in Tableau.
   Or
   (b) Elaborate Data blending.

7. (a) Discuss basic Filter and Quick Filters, with suitable examples.
   Or
   (b) How to apply filters across different data sources in Tableau? Illustrate.

8. (a) Examine the procedure to create Simple Dashboard.
   Or
   (b) Describe the elements of a Dashboard in Tableau.Explain creation of a story in tableau Dashboard.

9. (a) Explain how to merge queries and operations on IPL dataset.
   Or
   (b) Explain the following: (i) Natural Language Queries (ii) unpivot in Power Bi

10. (a) Create relationships between Tables in the Model
    Or
    (b) Explain the following:
    (i) Appending a Query in Power Bi (ii) Charts in Power Bi.

***

M.Sc., (Organic Chemistry) Supplementary DEGREE EXAMINATIONS - MARCH 2024
THIRD SEMESTER

(For Students admitted in 2020 & 2021 Batches)

ORGANIC REACTIONS & MECHANISMS

Time: 3 Hours Max. Marks: 70

SECTION – A

Answer the following: 10 X 2 = 20 M

1. a) Discuss oxidations with HIO_4.
   b) Define oxidation and discuss the various types of oxidations.
   c) Write notes on reduction with diimide.
   d) Explain Birch reduction with an appropriate example.
   e) Discuss Sommelet-Hauser rearrangement.
   f) Illustrate the suitable reagent /condition required for converting oximes to amides.
   g) What are pericyclic reactions? Give the classification.
   h) Write the molecular orbital energy level diagram for 1,3 – Butadiene.
   i) Explain the Paterno-Buchi reaction with an example.
   j) Describe the term quenching concerning the photochemical process.

SECTION - B

Answer the following:

2. a) Explain oxidations with (i) RuO_4 (ii) SeO_2 10 M
   Or
   b) Explain oxidations with (i) $KMnO_4$ (ii) MnO_2 10 M

3. a) (i) Discuss the mechanism of partial reduction of aromatic compounds by dissolving metal reduction. 5 M
   (ii) Summarize Clemmensen reduction with an example. 5 M
   Or
   b) List out any four metal hydride reducing agents and give a note on $LiAlH_4$ 10 M

4. a) Explain the following:
   (i) Wagner Meerwein rearrangement 5 M
   (ii) Benzil –Benzilic acid rearrangement. 5 M
   Or
   b) (i) Baeyer Villiger rearrangement 5 M
   (ii) Cumene hydro peroxide rearrangement 5 M

5. a) Apply correlation method to $4n\pi$ electro cyclic reaction for thermal and photochemical conditions. 10 M
   Or
   b) Apply FMO method to 1,5 sigma tropic shift and write Woodward and Hoffman rules by PMO method. 10 M

6. a) Describe the photolysis of carbonyl compounds. 10 M
   Or
   b) Write short notes on:
   (i) Photo-Fries rearrangement 5 M
   (ii) Barton reaction 5 M

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M.Sc. (Organic Chemistry) DEGREE EXAMINATIONS – MARCH 2024
THIRD SEMESTER

ORGANIC REACTION MECHANISM (Domain Specific)

Time: 3 Hours Max. Marks: 70

SECTION-A

Answer the following: 5 X 4 = 20 M

1. (a) Discuss oxidations with OsO_4.
   Or
   (b) Define epoxidation and write one example with per acids.

2. (a) Write notes on reduction with metal and liquid ammonia.
   Or
   (b) Give the definition and mechanism of wolf Kishner's reduction.

3. (a) Discuss Sommelet–Hauser rearrangement.
   Or
   (b) Write an account of Neber rearrangement.

4. (a) Define pericyclic reactions and mention the classification.
   Or
   (b) Draw the molecular orbital energy level diagram for1, 3, 5 –Hexatriene, & explain.

5. (a) Write notes on quenching.
   Or
   (b) Explain photolysis of organic nitrites.

SECTION–B

Answer the following: 5 X 10 = 50 M

6. (a) Explain oxidations with i) Ag_2CO_3 ii) SeO_2
   Or
   (b) Explain oxidations with i) NBS ii) HIO_4

7. (a) Discuss reductions with hydride transfer reagents.
   Or
   (b) Explain the reductions with metal acids.

8. (a) Explain the following:
   i) Favorski rearrangement ii) Benzil–Benzilic acid rearrangement.
   Or
   (b) i) Orton rearrangement ii) Dakin rearrangement.

9. (a) Write correlation method to 4nπ electro cyclic reaction for thermal and photochemical conditions.
   Or
   (b) Write a detailed note on mechanism, stereochemistry of (2+2) and (4+2)π systems.

10. (a) Discuss photochemistry of carbonyl compounds.
    Or
    (b) Explain the following: i) Photo Fries rearrangement ii)The Hoffmann Loffler freytag reaction.

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M.Sc. (Computer Science) DEGREE EXAMINATIONS – MARCH 2024
THIRD SEMESTER

DESIGN & ANALYSIS OF ALGORITHMS (Domain Specific)

Time: 3 Hours Max. Marks: 70

SECTION –A

Answer the following: 5 X 4 = 20 M

1. (a) What is Randomized Algorithm? Give an example.
   Or
   (b) What is Recursion? Give Recursive algorithm for Tower of Hanoi Problem.

2. (a) Explain defective chess board problem.
   Or
   (b) Compare and contrast the general method of greedy and Divide and Conquer approaches.

3. (a) Explain Multistage Graphs with an example.
   Or
   (b) Explain single source shortest path Problem with an example.

4. (a) What is sum-of-subsets problem? Write a recursive backtracking algorithm for sum of subsets problem.
   Or
   (b) Explain use of Branch & Bound Technique for solving Assignment Problem.

5. (a) Compare NP hard and NP Complete Classes.
   Or
   (b) Explain flow shop scheduling in NP Hard Scheduling Problems.

SECTION – B

Answer the following: 5 X 10 = 50 M

6. (a) Why do we use asymptotic notations in the study of algorithms? Describe the commonly used asymptotic notations.
   Or
   (b) Explain priority queues and heap sort with an example.

7. (a) Elucidate the merge sort algorithm with an example. Design an algorithm for it.
   Or
   (b) What is Minimum cost spanning tree? Explain an algorithm for generating minimum cost Spanning tree and list some applications of it.

8. (a) Illustrate the working principle of Dynamic Programming with All Pairs Shortest path problem. Or

   (b) Explain Breadth First Search and Depth First Search Traversal techniques of a Graph.

9. (a) Describe the algorithm for Hamiltonian cycles. Determine the order of magnitude of the worst-case computing time for the backtracking procedure that finds all Hamiltonian cycles.
   Or
   (b) Write an algorithm for the 8-queens problem using backtracking.

10. (a) Explain Cook's theorem with an example.
    Or
    (b) Show that the Hamiltonian cycle's problem on directed graphs is NP-complete.

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M.Sc. (Organic Chemistry) DEGREE EXAMINATIONS – MARCH 2024

THIRD SEMESTER

ORGANIC SYNTHESIS (Domain Specific)

Time: 3 Hours Max.Marks: 70

SECTION–A

Answer the following: 5 X 4 = 20 M

1. (a) Discuss Umpolung.
   Or
   (b) Write a note on Enolate anion.

2. (a) Explain allylic alkylation of alkenes.
   Or
   (b) Discuss the Claisen rearrangement in allyl vinyl ethers.

3. (a) Describe intramolecular Diels-Alder reaction.
   Or
   (b) What is ENE reaction? Explain with examples.

4. (a) Explain FGI with suitable example.
   Or
   (b) Define synthons and synthetic equivalents.

5. (a) Discuss the importance of functional group protection and deprotection in organic synthesis.
   Or
   (b) Explain the importance of Regio selective protection and deprotection.

SECTION-B

Answer the following: 5 X 10 = 50 M

6. (a) Describe the preparation and synthetic applications of enamine reactions.
   Or
   (b) Explain the synthetic applications of carbenes and carbenoids.

7. (a) Discuss the reaction, mechanism and synthetic applications of Wittig reaction.
   Or
   (b) Discuss the stereo selective synthesis of tri and tetra substituted alkenes.

8. (a) Write a note on stereochemistry and mechanism of Diels-Alder reaction.
   Or
   (b) Write a note on various types of dienophiles.

9. (a) Discuss one group C-C disconnection in alcohols.
   Or
   (b) Describe two group C-C disconnection in carbonyl compounds.

10. (a) Write about the protection and deprotection of hydroxyl , carbonyl functional groups.
    Or
    (b) Discuss the protection and deprotection of Carboxyl and amino functional groups.

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M.C.A. & M.Sc. (Computer Science) DEGREE EXAMINATIONS – MARCH 2024

THIRD SEMESTER

CRYPTOGRAPHY & NETWORK SECURITY (Domain Specific)

Time: 3 Hours Max. Marks: 70

SECTION –A

Answer the following: 5 X 4 = 20 M

1. (a) Explain the difference between symmetric ciphers and asymmetric ciphers in classical encryption techniques.

   Or

   (b) Write about TRNGs, PRNGs.

2. (a) What are the key characteristics of the Advanced Encryption Standard (AES)? Why is it widely adopted for secure communication?

   Or

   (b) Explain the concept of entropy in the context of random bit generation. How is entropy measured and maintained?

3. (a) Explain the Euclidean Algorithm and its application in finding the greatest common divisor (GCD) of two integers.

   Or

   (b) Discuss the security strengths and potential vulnerabilities of the RSA algorithm in the context of modern cryptographic challenges.

4. (a) Describe the challenges associated with distributing public keys in a public key infrastructure (PKI). How these challenges are addressed?

   Or

   (b) Explain the key features of TLS that enhance the security of data transmission.

5. (a) Elucidate the purpose and components of the Encapsulating Security Payload (ESP) in IPsec.

   Or

   (b) What is intrusion detection?

SECTION – B

Answer the following: 5 X 10 = 50 M

6. (a) Discuss the importance of random bit generation in cryptographic systems and its role in enhancing security.

   Or

   (b) How does AES differ from its predecessor, the Data Encryption Standard (DES), in terms of security and efficiency?

7. (a) How does HMAC (Hash-based Message Authentication Code) enhance the security of message authentication in comparison to other MACs?

   Or

   (b) Explain Internal and External Error Control in Message Authentication Functions.

(Turn Over)

8. (a) Discuss the advantages and potential limitations of using digital signatures for securing digital information.

Or

(b) Explain the key features of TLS that enhance the security of data transmission.

9. (a) How do S/MIME and PGP handle key management for secure email communication?

Or

(b) Describe the role of anomaly detection in identifying suspicious activities and potential intrusions.

10. (a) Discuss the role of proxy servers in enhancing security within a network and the types of services they provide.

Or

(b) How does a stateful firewall differ from a stateless firewall? In what scenarios are they most effective.

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20CH3T3

M.Sc., (Organic Chemistry) Supplementary DEGREE EXAMINATIONS - MARCH 2024

THIRD SEMESTER

(For Students admitted in 2020 & 2021 Batches)

ORGANIC SYNTHESIS

Time: 3 Hours Max. Marks: 70

SECTION – A

Answer the following: 10 X 2 = 20 M

1. a) Compare the acidity of methylenic protons in 1,3 diketones with 1,3 diesters.
   b) Explain stereospecificity of singlet and triplet carbenes.
   c) Discuss in short about syn elimination.
   d) Explain Wittig reaction with an example.
   e) Describe Retro Diels-Alder reaction with an example.
   f) Write about hetero dienes .
   g) What are synthons and synthetic equivalents? Give examples.
   h) Explain the importance of FGI in synthesis.
   i) Discuss the role of protecting agents.
   j) Explain the importance of chemoselective protection.

SECTION – B

Answer the following: 5 X 10 = 50 M

2. a) Explain alkylation of ketones and enolates.

   Or

   b) Discuss allylic alkylation of alkenes and alkylation of α-thiocarbanions.

3. a) Discuss any three methods for the stereoselective synthesis of tri and tetra substituted alkenes.

   Or

   b) Illustrate how Wittig reagent can be used for the synthesis of double bond and steroselective synthesis of E and Z alkenes by Wittig reagent with examples.

4. a) Write about photosensitized Diels- Alder reactions.

   Or

   b) Write note on Intra molecular Diels –Alder reactions.

5. a) Discuss various methods of disconnection of alcohols.

   Or

   b) Give an account of disconnections of 1,3- dicarbonyl compounds.

6. a) Discuss the protecting agents to protect the following functional groups.
   (i) Carbon-Carbon double bond (ii) Carboxylic acid.

   Or

   b) List out the reagents and apply them for the protection and deprotection of carbonyl and ammino groups.

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M.Sc., (Computer Science) Supplementary DEGREE EXAMINATIONS - MARCH 2024
THIRD SEMESTER

(For Students admitted in 2020 & 2021 Batches)

CRYPTOGRAPHY&NETWORK SECURITY

Time: 3 Hours Max. Marks: 70

SECTION – A

Answer the following: 10 X 2 = 20 M

1) a) What is Caesar Cipher?
b) Write any two characteristics of Randomness.
c) What are the key components of Public-Key Encryption scheme?
d) What is Hash function?
e) What is the difference between Symmetric Key Distribution & Asymmetric Key distribution?
f) What is Mutual Authentication?
g) What is Domain Name System?
h) What is Pretty Good Privacy?
i) List any two characteristics of Firewall.
j) State any two Intrusion Detection Techniques.

SECTION – B

Answer the following: 5 X 10 = 50 M

2) a) Explain Model for Network Security in detail.
Or
b) Explain the following Substitution Cipher Techniques:
i) Caesar Cipher ii) Hill Cipher, Monoalphabetic Ciphers, Polyalphabetic Ciphers.

3) a) Illustrate Diffe-Helmann Key Exchange.
Or
b) Explain Internal and External Error Control in Message Authentication Functions.

4) a) Explain general schemes for distribution of public Keys.
Or
b) Explain Remote User-Authentication using Symmetric Encryption.

5) a) Explain Transport Layer Security Architecture.
Or
b) Illustrate two ways in which the IPsec ESP service can be used.

6) a) Discuss what are the problems that may intruder create and explain how to overcome those problem.
Or
b) Discuss various types of Firewalls.

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M.Sc. (Organic Chemistry) DEGREE EXAMINATIONS – MARCH 2024
THIRD SEMESTER

NATURAL PRODUCTS (Domain Specific)

Time: 3 Hours MaximumMarks: 70

SECTION–A

Answer the following: 5 X 4= 20 M

1. (a) Write the structure of quinine.
   Or
   (b) Discuss the role of alkaloids in plants.

2. (a) Discuss the nomenclature of terpenoids.
   Or
   (b) Write the structure of α - terpeneol.

3. (a) Write the structure of androsterone.
   Or
   (b) Discuss the physiological action of steroids.

4. (a) Write the classification of flavonoids.
   Or
   (b) Discuss the isolation of flavonoids.

5. (a) Write about the classification of carotenoids.
   Or
   (b) Discuss the functions of carotenoids in plants and animals.

SECTION–B

Answer the following: 5 X 10 = 50 M

6. (a) Outline the structure and synthesis of ephedrine.
   Or
   (b) Discuss the general methods for degradation of alkaloids.

7. (a) Explain the structural elucidation of farnesol.
   Or
   (b) Discuss the structure and synthesis of zingiberene.

8. (a) Establish the structure of testosterone.
   Or
   (b) Establish the structure and synthesis of progesterone.

9. (a) Write a detailed note on structure and synthesis of kaempferol.
   Or
   (b) Establish the structure of quercetin.

10. (a) Write an elongated note on α–carotene.
    Or
    (b) Discuss the structural elucidation of β-carotene.

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M.Sc. (Computer Science) DEGREE EXAMINATIONS – MARCH 2024

THIRD SEMESTER

MACHINE LEARNING (Domain Specific)

Time: 3 Hours Max. Marks: 70

SECTION –A

Answer the following: 5 X 4 = 20 M

1. (a) Differentiate between Human and Machine Learning.
   Or
   (b) Explain any two tools that are supported machine learning.

2. (a) What is Feature Scaling? Why Should we Use Feature Scaling?
   Or
   (b) Discuss different modules available in SKLEARN.

3. (a) What is Regularization? Explain Lasso Regularization.
   Or
   (b) Discuss kernel functions in SVM.

4. (a) Discuss the need of dimensionality reduction.
   Or
   (b) List out the applications of unsupervised learning.

5. (a) Draw the architecture and explain the components of neural networks.
   Or
   (b) Write the steps for image classification using convolution neural networks.

SECTION-B

Answer the following: 5 X 10 = 50 M

6. (a) Develop the framework for developing machine learning models.
   Or
   (b) What is Machine Learning? Explain types of Machine Learning.

7. (a) Discuss exploratory data analysis using any dataset.
   Or
   (b) Explain various methods used for dimensionality reduction in machine learning.

8. (a) Explain *Decision Tree Algorithm* for Classification with an example.
   Or
   (b) Explain Simple linear Regression and Multiple Linear Regression with an example.

9. (a) What is an Association Rule? Explain Apriority algorithm and fp growth algorithm.
   Or
   (b) Explain about k-means clustering and Hierarchal clustering in detail.

10. (a) What is LSTM? Explain the Architecture and Working of LSTM.
    Or
    (b) What is Recurrent Neural Network (RNN)? Explain different types of RNN.

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M.Sc., (Organic Chemistry) Supplementary DEGREE EXAMINATIONS - MARCH 2024

THIRD SEMESTER

(For Students admitted in 2020 & 2021 Batches)

CHEMISTRY OF NATURAL PRODUCTS

Time: 3 Hours Max. Marks: 70

SECTION – A

Answer the following. 10 X 2 = 20 M

1. a) What is the role of alkaloids in plants?
   b) Write about isolation of alkaloids.
   c) Discuss the nomenclature of terpenoids.
   d) Write the structure of Zingiberine.
   e) Write the synthesis of farnesol.
   f) Structure of cholesterol.
   g) Give a short note on physiological action of flavonoids.
   h) Discuss the isolation of flavonoids and isoflavonoids.
   i) Discuss the classification of natural pigments.
   j) Discuss the functions of carotenoids in plants.

SECTION – B

Answer the following. 5 X 10 = 50 M

2. a) Outline the synthesis of Quinine.
   Or
   b) Discuss the structural elucidation of nicotine.

3. a) Explain the structure elucidation of Zingiberene.
   Or
   b) Write notes on structure elucidation of farnesol.

4. a) Establish the structure of androsterone with necessary explanation.
   Or
   b) Establish the structure and synthesis of testosterone.

5. a) Discuss the structure and synthesis of kaempferol.
   Or
   b) Establish the structure of Quercetin.

6. a) Discuss the structure elucidation of α – carotene.
   Or
   b) Write about the functions of carotenoids in plants and animals.

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20CH3T3

M.Sc., (Organic Chemistry) Supplementary DEGREE EXAMINATIONS - MARCH 2024

THIRD SEMESTER

(For Students admitted in 2020 & 2021 Batches)

ORGANIC SYNTHESIS

Time: 3 Hours Max. Marks: 70

SECTION – A

Answer the following: 10 X 2 = 20 M

1. a) Compare the acidity of methylenic protons in 1,3 diketones with 1,3 diesters.
   b) Explain stereospecificity of singlet and triplet carbenes.
   c) Discuss in short about syn elimination.
   d) Explain Wittig reaction with an example.
   e) Describe Retro Diels-Alder reaction with an example.
   f) Write about hetero dienes .
   g) What are synthons and synthetic equivalents? Give examples.
   h) Explain the importance of FGI in synthesis.
   i) Discuss the role of protecting agents.
   j) Explain the importance of chemoselective protection.

SECTION – B

Answer the following: 5 X 10 = 50 M

2. a) Explain alkylation of ketones and enolates.

   Or

   b) Discuss allylic alkylation of alkenes and alkylation of α-thiocarbanions.

3. a) Discuss any three methods for the stereoselective synthesis of tri and tetra substituted alkenes.

   Or

   b) Illustrate how Wittig reagent can be used for the synthesis of double bond and steroselective synthesis of E and Z alkenes by Wittig reagent with examples.

4. a) Write about photosensitized Diels- Alder reactions.

   Or

   b) Write note on Intra molecular Diels –Alder reactions.

5. a) Discuss various methods of disconnection of alcohols.

   Or

   b) Give an account of disconnections of 1,3- dicarbonyl compounds.

6. a) Discuss the protecting agents to protect the following functional groups.
   (i) Carbon-Carbon double bond (ii) Carboxylic acid.

   Or

   b) List out the reagents and apply them for the protection and deprotection of carbonyl and ammino groups.

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M.Sc., (Computer Science) Supplementary DEGREE EXAMINATIONS - MARCH 2024

THIRD SEMESTER

(For Students admitted in 2020 & 2021 Batches)

DATA MINING TECHNIQUES

Time: 3 Hours Max. Marks: 70

SECTION – A

Answer the following: 10 X 2 = 20 M

1. a) Difference between Data Mining and Data Warehousing.
   b) What is meant by Data Cleaning?
   c) Define Multidimensional Data model.
   d) What are the different types of Outliers?
   e) Give one example for Closed Item set and Maximal Frequent Item set.
   f) What is meant by Association Rule?
   g) Define Classification with an example.
   h) What are the requirements of Cluster Analysis?
   i) What is meant by Association Rule?
   j) OLAP versus OLTP.

SECTION – B

Answer the following: 5 X 10 = 50 M

2. a) Define Data Mining. What kind of Patterns can be mined in Data Mining?

   Or

   b) Define Data Integration. What are the different techniques used in Data integration?

3. a) Define Data Warehouse. Differentiate between Operational Database Systems and Data Warehouse.

   Or

   b) Define OLAP. Explain the role of Concept Hierarchies.

4. a) Elucidate Aprior Algorithm with example.

   Or

   b) Explain Multi level and Multi-Dimensional Association Rules with examples.

5. a) Explain Naïve Bayes Classification Methods with example.

   Or

   b) Elaborate Classification by Back Propagation with example.

6. a) Enumerate K-Means Partitioning Method with example.

   Or

   b) Explain in detail DBSCAN.

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20OECS2

M.Sc. (Organic Chemistry) Supplementary DEGREE EXAMINATIONS – MARCH 2024

THIRD SEMESTER

WEB PROGRAMMING (Open Elective)

(For Students admitted in 2021-22)

Time: 3 Hours Max. Marks: 70

SECTION- A

Answer the following: 5 X 4 = 20 M

1. a) Explain the uses of the Internet.
   Or
   b) Write the syntax of URL with suitable example.
   Or
2. a) What is heading tag in HTML? How many types of heading tags are there in HTML?
   Or
   b) Define image tag with an example.

3. a) How to add a checkbox in forms using HTML?
   Or
   b) How to create a Drop down list in HTML?
   Or
4. a) What are CSS Selectors?
   Or
   b) What are the advantages of XML over HTML?
   Or
5. a) How to select a blank template in wix?
   Or
   b) How to add Background for pages in wix?

SECTION-B

Answer the following: 5 X 10 = 50 M

6. a) Explain client server model with a neat diagram.
   Or
   b) Define Internet Protocol (IP). Explain different types of Internet protocols.

7. a) Explain the structure of the HTML webpage with an example.
   Or
   b) Define Table tag and their attributes with an example.

8. a) What is a form in html? Design a Registration page by using all Form controls.
   Or
   b) Define Frameset, Frame Tag. Divide the web page into four equal parts such that each individual part displays different web page.

(Turn Over)

9. a) Define CSS. Explain inline, internal, external and embedded style sheets with examples.

Or

b) Explain the following terms 1) Internal DTD 2) External DTD 3) The Buildings Blocks of XML Documents.

10. a) Explain working of Wix Website Pages Website Pictures, Videos and Logos.

Or

b) Elucidate the process of creating a Website using Wix Platform.

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AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru.
(An Autonomous College in the Jurisdiction of Krishna University-Machilipatnam)

For M.Sc (Computer Science & Organic Chemistry) Programmes –March 2024
I[st] Semester (Regular)

PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS

Time: 3 Hours | Max. Marks: 70

SECTION-A

Answer the following: 5 X 4 = 20 M

1. (a) Distinguish between success and failure. Explain about success in life.
   Or
   (b) Define personality. Summarize the importance of personality development.

2. (a) Write in brief about self-motivation. Explain the types of self-motivation.
   Or
   (b) Assess the contemporary relevance of Herzberg's two-factor theory of motivation.

3. (a) List leadership skills and the qualities of a successful leader.
   Or
   (b) What is conflict management? Explain.

4. (a) Explain the Neetisatakam verse 19 (wisdom).
   Or
   (b) Briefly explain about the Shrimad Bhagwadgeeta Chapter2-Verses 17
   (The one which pervades this entire world is indestructible)

5. (a) Write about anulom and vilom pranayama.
   Or
   (b) Define stress management. List types of stress.

SECTION-B

Answer the following: 5 X 10 = 50 M

6. (a) Compare and contrast between Freud and Erickson theories of Personality development.
   Or
   (b) Identify the factors responsible success. Suggest effective measures to overcome hurdles in achieving success.

7. (a) Describe the nature of self esteem? List the Do's and Don'ts to develop positive self-esteem.
   Or
   (b) Briefly explain Maslow's theory of motivation.

8. (a) Explain the importance of character in personality development. Suggest any three ways to build a good character.
   Or
   (b) Describe steps in decision making process.

(Turn Over)

9. (a) Discuss Chapter 3 verse 42 of Bhagavad Geeta as one of the determinants of personality development.

Indriyani paranyahur indriyebhyah param manah
manasas tu para buddhir yo buddheh paratas tu sah

Meaning: The senses are superior to the gross body, and superior to the senses is the mind. Beyond the mind is the intellect, and even beyond the intellect is the soul.

Or

(b) Explain the neetisatakam verses 26 & amp; 28 to develop a holistic personality Development.

10. (a) Explain the role of meditation techniques in the wholesome well being of people.

Or

(b) Write about historical perspectives of yoga in Indian culture and civilization.

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22PG101

For all PG Programmes- (Except MBA) Supplementary DEGREE EXAMINATIONS MARCH 2024
FIRST SEMESTER
PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS

(For Admitted students of 2022 Batch)

Time: 3 Hours Max. Marks: 70

SECTION- A

Answer the following: 5 X 4 = 20 M

1. (a) Write about the dimensions of personality.
   Or
   (b) Explain the hurdles in achieving success.

2. (a) Give a short account of the term Attitude.
   Or
   (b) Discuss the importance of self-motivation.

3. (a) Explain the conflict management.
   Or
   (b) Write the qualities of a successful leader.

4. (a) Explain the Neetisatakam (pride & heroism) verse 29.
   Or
   (b) Briefly explain the Neetisatakam (virtue) verse 26.

5. (a) What do you understand by the term Yoga?
   Or
   (b) List out the meditation techniques.

SECTION- B

Answer the following: 5 X 10 = 50 M

6. (a) What are the major types of personality theories? Discuss the contemporary relevance of Sigmund Freud's psychoanalytic theory of personality.
   Or
   (b) What is SWOT analysis in personality development? How does SWOT analysis help people to identify and improve their personality type?

7. (a) Write a note on advantage of positive attitude.
   Or
   (b) Elucidate the Maslow's Hierarchy of Needs' theory with an example.

8. (a) What are decision making skills? Explain decision making process in the work place.
   Or
   (b) Elaborate the dimensions of emotional intelligence. What are the five signs of higher emotional intelligence?

9. (a) Analyse the aspects of Holistic Development of personality.
   Or
   (b) Explain Personality of Role Model as said in Bhagavad Gita.

10. (a) Explain the principles of Astanga Yoga by Patanjali.
    Or
    (b) Write about different meditation techniques.

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M.Sc. (Computer Science) DEGREE EXAMINATIONS – MARCH 2024

FIRST SEMESTER

PROGRAMMING & PROBLEM SOLVING USING PYTHON

Time: 3 Hours Max. Marks: 70

SECTION – A

Answer the following: 5 X 4 = 20 M

1. (a) What are literals? Explain with the help of examples.
   Or
   (b) What is an Indentation in Python? Explain with an example program.

2. (a) Write a Python programs to generate a Fibonacci sequence of integers using Recursive Function.
   Or
   (b) Write about tuples in Python.

3. (a) Explain creating classes in Python with examples.
   Or
   (b) How to call a Class Method from Another Class Method? Explain with an example.

4. (a) What is an operator overloading in Python? Explain advantages of Operator Overloading.
   Or
   (b) Define error and exception. Distinguish between these two features.

5. (a) Write the use and syntax for the following methods: a) open() b) read()
   c) WRITE () d) close()
   Or
   (b) Explain the types of Plots in Matplotlib.

SECTION- B

Answer the following: 5 X 10 = 50 M

6. (a) List different operators in Python in the order of their precedence.
   Or
   (b) What are the different loop control statements available in Python? Explain with suitable examples.

7. (a) Why is it necessary to use modules? How to structure a program?
   Or
   (b) What is a Python Dictionary? Explain built-in dictionary functions with an example.

8. (a) Discuss the object oriented features and explain public and private data members with examples .
   Or
   (b) Describe the use of Inheritance in Python. Explain different types of Inheritances with an example.

9. (a) Write about Exception Handling in Python programming.
   Or
   (b) What is Data Frame in Pandas? Explain different ways to create Pandas Data frame with syntax and example.

10. (a) What is Matplotlib ? Explain in detail the basic functions in matplotlib.
    Or
    (b) What is Numpy? Explain in detail the basic functions in Numpy.

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M.Sc. (Computer Science) DEGREE EXAMINATIONS – MARCH 2024

FIRST SEMESTER

DATABASE MANAGEMENT SYSTEMS

Time: 3 Hours Max. Marks: 70

SECTION–A

Answer the following: 5 X 4 = 20 M

1. (a) Explain the functions of DBA.
   Or
   (b) What are the components at the logical level of DBMS architecture?

2. (a) Write the use of the division operator in relational algebra with an example.
   Or
   (b) List out any four constraints applied during the creation of the table.

3. (a) Define BCNF. How does BCNF differ from 3NF?
   Or
   (b) How dependency preservation can be achieved?

4. (a) Define the durability and atomicity of a transaction.
   Or
   (b) List out types of logs available in transition management.

5. (a) List out set of operators that can be used in SQL.
   Or
   (b) Explain Multimedia Databases.

SECTION-B

Answer the following: 5 X 10 = 50 M

6. (a) Write the advantages of using a DBMS and the capabilities that a good DBMS should possess. What is the difference between procedural and nonprocedural DMLs?
   Or
   (b) Explain the difference between two-tier and three-tier architectures. Which is better suited for Web applications? Why?

7. (a) Demonstrate and explain data abstraction implementation in DBMS.
   Or
   (b) Describe the set of operations of relational algebra, including union (U), intersection (∩), set-difference (-), and cross-product.
   What can you say about the cardinality of their input and output tables for each?

8. (a) Discuss Normal Forms Based on Primary Keys.
   Or
   (b) What is functional dependency? Write the inference rules of functional dependencies.

9. (a) Explain Wait/Die and Wound/Wait Schemes in transaction management.
   Or
   (b) Elucidate two-phase locking for ensuring serializability.

10. (a) How do you analyse Mobile Databases?
    Or
    (b) Explain the following with suitable examples. i) Transaction rollback and cascading rollback ii) Transaction support in SQL.

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M.Sc (Organic Chemistry) DEGREE EXAMINATIONS – MARCH 2024

FIRST SEMESTER

INTRODUCTORY ORGANIC CHEMISTRY

Time: 3 Hours Max Marks: 70

SECTION - A

Answer the following: 5 X 4 = 20 M

1. (a) Explain homoaromaticity with an example.
   Or
   (b) Explain tautomerism with an example.

2. (a) Explain the structure of arynes.
   Or
   (b) Write about the ylids.

3. (a) Discuss cram's rule with suitable examples.
   Or
   (b) Write notes on syn hydroxylation.

4. (a) Define Saytzeff's rule. Give suitable examples.
   Or
   (b) Discuss anti elimination.

5. (a) Give mechanism of Smiles rearrangement.
   Or
   (b) Write notes on SN1 mechanism.

SECTION–B

Answer the following: 5 X 10 = 50 M

6. (a) Define delocalized chemical bonding. What are the different types of delocalized chemical bonds.
   Or
   (b) Explain the following terms: (i) Cross conjugation (ii) Anti aromaticity.

7. (a) Discuss the generation, stability and reactivity of carbanions.
   Or
   (b) Explain synthesis and few reactions of the following:
   (i) Free radicals (ii) Carbenes

8. (a) Give an account of the addition of the following to carbon carbon multiple bonds.
   (i) X_2 (ii) HOX
   Or
   (b) Discuss the synthetic reactions of CO and CN.

9. (a) Discuss the process of dehydration with suitable examples.
   Or
   (b) Write a detailed account of E2 mechanism.

10. (a) What is neighbouring group participation? Discuss neighbouring group participation by σ and π bonds.
    Or
    (b) Explain the following: (i)Sommelet– Hauser mechanism (ii)SN^{Ar} mechanism.

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M.Sc. (Computer Science) DEGREE EXAMINATIONS – MARCH 2024

FIRST SEMESTER

FORMAL LANGUAGES & AUTOMATA THEORY

Time: 3 Hours Max. Marks: 70

SECTION – A

Answer the following: 5 X 4 = 20 M

1. (a) Differentiate Moore and Mealy Machines with suitable examples.

   Or

   (b) Why is it important to study minimization of FSM?

2. (a) State the Pumping Lemma for regular sets. Show that L = $\{a^P \mid P \text{ is a prime}\}$ is not regular.

   Or

   (b) Define Regular expression and its applications.

3. (a) Define Context Free Grammar. Discuss the importance of the minimization of Context Free Grammars.

   Or

   (b) Discuss various types of Turing Machines.

4. (a) Explain various design issues of compiler.

   Or

   (b) What are the specifications of Tokens?

5. (a) Write about Error Recovery in Predictive Parsing.

   Or

   (b) Describe Shift-Reduce Parsing.

SECTION-B

Answer the following: 5 X 10 = 50 M

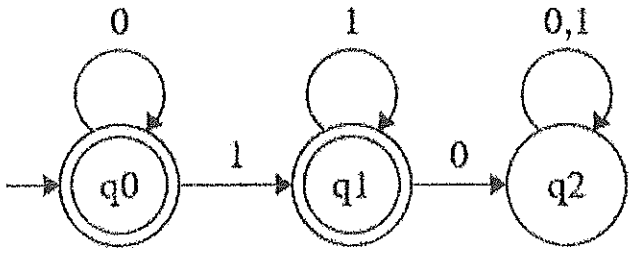
6. (a) i) Design DFA to accept strings with 'a' and 'b' such that number of b's are divisible by 3. Construct the given NFA to DFA.

   ii) Design a DFA to accept strings with 0's and 1's such that number of 0's and number of 1's are even.

   Or

   (b) Describe the procedure of converting NFA to DFA with a suitable example.

7. (a) Construct Regular Expression for the below finite Automaton



   Or

   (b) Convert the following regular expression to NFA with epsilon transitions 0*+11 (0+1)*

(Turn Over)

8. (a) Design PDA for the language L= $\{a^m b^m / m \geq 1\}$

Or

(b) What is Chomsky Normal Form (CNF)? Construct CNF form for the following CFG.
S→ A/B/C, A→aAa/B, B→bB/bb, C→aCaa/D, D→baD/abD/aa.

9. (a) Discuss the concepts of Lexical Analysis.

Or

(b) How to generate object code for X=Y+Z*15 through different phases of compiler?

10. (a) Discuss the general format for LEX program.

Or

(b) Construct Recursive Descent Parser for the following grammar.

G = ({S, A}, {a, b}, P, S}
P:{ S->AS / b
A->SA / a}

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M.Sc (Organic Chemistry) DEGREE EXAMINATIONS – MARCH 2024

FIRST SEMESTER

PHYSICAL CHEMISTRY

Time: 3 Hours Max Marks: 70

SECTION - A

Answer the following: 5 X 4 = 20 M

1. (a) Discuss about Entropy of mixing of ideal gases.
   Or
   (b) Derive Clausius Clapeyron equation.

2. (a) Write notes on catalytic activity of surfaces.
   Or
   (b) Write notes on micro emulsions.

3. (a) State and Explain Activity and activity coefficients.
   Or
   (b) Discuss the effect of dilution on equivalent conductance of electrolytes.

4. (a) Explain the kinetics of opposing reactions.
   Or
   (b) Describe Rice-Herzfeld mechanism.

5. (a) Write notes on Membrane electrodes.
   Or
   (b) Write the applications of potentiometric titrations.

SECTION–B

Answer the following: 5 X 10 = 50 M

6. (a) State and explain Fugacity and its determination.
   Or
   (b) Derive Maxwell partial relations.

7. (a) Write notes on Micellization, Hydrophobic interaction and CMC.
   Or
   (b) Write notes on Kelvin and young – Laplace equations.

8. (a) Explain how to determine solubility product from EMF measurements.
   Or
   (b) Explain the anomalous behavior of strong electrolytes.

9. (a) Discuss the theories of reaction rates.
   Or
   (b) Discuss about the kinetics of consecutive reactions.

10. (a) Give an account on indicator electrodes.
    Or
    (b) Write notes on potentiometric methods and their advantages

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M.Sc. (Computer Science) DEGREE EXAMINATIONS – MARCH 2024

FIRST SEMESTER

OPERATING SYSTEMS

Time: 3 Hours | Max. Marks: 70

SECTION – A

Answer the following: 5 X 4 = 20 M

1. (a) Define the operating system as a resource manager.
   Or
   (b) Explain the types of System Calls.

2. (a) Discuss the benefits of multithreaded programming.
   Or
   (b) List Fields of Process Control Block.

3. (a) Explain Starvation in deadlock.
   Or
   (b) Elucidate the basic page replacement strategy.

4. (a) Write in detail about file attributes.
   Or
   (b) Briefly discuss the various directory structures.

5. (a) Explain the Dalvik Virtual machine in Android.
   Or
   (b) List and give the purpose of the various directory structures.

SECTION-B

Answer the following: 5 X 10 = 50 M

6. (a) Write notes on functions and services provided by OS.
   Or
   (b) What are the advantages of inter-process communication? How does communication take place in a shared-memory environment? Explain.

7. (a) Assume the following workload in a system. All jobs arrive at time 0 in the order given.

Process	Burst Time	Order
P1	4	1
P2	5	2
P3	3	3

   Draw a Gantt chart illustrating the execution of these jobs using the Round Robin CPU scheduling algorithm (Assume time quantum= 1 unit) and also Calculate the average waiting time and average turnaround time.
   Or
   (b) Explain Peterson's solution for the critical section problem.

8. (a) What are the necessary conditions for deadlock? How can you detect a deadlock when each resource is having single instance?
   Or
   (b) Elaborate the importance of Demand paging in memory management with an example.

(Turn Over)

9. (a) Explain the various methods for free-space management.

Or

(b) Categorize various Allocation Methods of File System Implementation.

10. (a) List and explain two types of Network Structures available with the help of diagrams.

Or

(b) Explain the process life cycle in Android.

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