2. (a) Prove that $n$ is a power of 2, then prove that $n^2(2^n - 1)$ is divisible by 24.
(b) If $n$ is an integer, show that $n(n^2 - 1)(3n + 2)$ is divisible.
(c) If $n$ is a power of 2, then prove that $\tan \frac{\pi}{2^n} = \frac{\sqrt{2}}{2n} - 1$.
(d) Prove that $\sin \frac{\pi}{16} = \frac{\sqrt{2}}{2} \sin \frac{1}{2} + \frac{1}{8} \sin \frac{1}{2}$.
(e) Prove that $\sin \frac{\pi}{32}$.

SECTION I

1. Find the general solution of $7x + 112 = 168$.
2. Prove that the number of primes is infinite.
SECTION

4. For \( \theta \)
   Express \( \cos \theta + \sin \theta \) in a series of cosines of multiples
   of \( \theta \).

4. Show that \( \cos^2 \theta + \sin^2 \theta + \cos \theta \) is a multiple of \( \pi \).
   And if \( \frac{\pi}{2} \) is \( \theta + \cos \theta \)

\[ \tan \theta = \sqrt{\frac{2}{1}} \]

SECTION III

9. (a) \( \tan \theta \) into real and imaginary parts.

4. Solve the equation

\[ \frac{(x + \theta)(\sin \theta + \cos \theta)}{(x - \theta)(\sin \theta - \cos \theta)} \cdot \frac{\sin \frac{\pi}{2}}{\cos \frac{\pi}{2}} = \phi \]

8. (a) \( \cos (\theta + \theta) = (\cos \theta + \sin \theta), \sin \theta \), prove that

4. \( \tan \theta \) into real and imaginary parts.

SECTION II

4. \( \tan \theta \) into real and imaginary parts. Show that

4. \( \frac{1 + \pi}{2} \) is a multiple of \( \pi \).

3. (a) \( \tan \theta \) into real and imaginary parts. Find real and

7. (a) \( \tan \theta \) into real and imaginary parts.
Problem 1

(a) Solve the equation

\[ \frac{2\kappa}{2p} = \frac{x - \kappa}{\kappa p} = \frac{\lambda}{xp} \]

differential equation

(b) Determine the complementary function of the

\[ 2 = \kappa + \frac{xp}{\kappa p} x - \frac{\kappa p}{\kappa p} x \]

equation

(c) Find the complementary function of the differential

\[ \sin x = \kappa \mu - \frac{\kappa p}{\kappa p} \]

equation

(d) Write the condition for existence of the differential

\[ Mx + N\phi = 0 \]

(e) Write the condition


---


computory (Question)

Computory. Select one question from each section.

Note: Attempt five questions in all. Question No. 1 is

Maximum Marks: 40

Time: Three Hours

PAPER-BM-I22

ORDINARY DIFFERENTIAL EQUATION

1473

GSEB-22

Rou No. 4

Total Pages: 4
Solve the simultaneous equations.

\[
\begin{aligned}
\dot{\varphi} &= \lambda + x \dot{z} + \frac{\nu p}{\kappa \dot{p}} \ddot{z} \\
\ddot{\varphi} &= \lambda \ddot{z} + x \ddot{z} - \frac{\nu p}{\kappa \dot{p}} \dddot{z} + \frac{\nu p}{\kappa \dot{p}} \dddot{z}
\end{aligned}
\]

Section I

4. Solve the differential equations by the method of undetermined coefficients.

5. Solve the differential equation by the method of variation of parameters.

6. Apply the method of variation of parameters to solve.

7. Solve the differential equation by removing the first derivative.

8. Solve the differential equation.

Section II

4. Solution of the equation \( \ddot{z} = \kappa \ddot{x} + \frac{\nu p}{\kappa \dot{p}} \dddot{z} \).

5. Solve and find the complete primitive and singular solution.

6. Solve the differential equation.

7. Solve the differential equation.

Section III

4. Solve the differential equation.

5. Solve the differential equation.

6. Solve the differential equation.
1. If $a$, $b$, $c$ are three unit vectors such that

\[ \frac{\dot{a} \times \ddot{b}}{a \times b} \times \frac{\dot{b} \times \ddot{c}}{b \times c} = \frac{\hat{c}}{c} \quad \text{and} \quad \hat{a} \times \hat{b} = \hat{c} \]

\[ \text{find angles which } \hat{g} \text{ makes with } a, b, c \]

2. (a) Evaluate $\int \left( \frac{\dot{a} \times \ddot{b}}{a \times b} \right)^{-1}$, $\hat{f}$, $\hat{g}$, $\hat{h}$ on $a$, $b$, $c$.

(c) Let $\mathbf{n}$, $\mathbf{w}$ be orthogonal co-ordinates. Prove that

\[ \mathbf{n} \times \mathbf{w} = \mathbf{0} \]

2. (b) If $\mathbf{f} = \mathbf{f} \times \mathbf{g}$, prove that

\[ \mathbf{f} \cdot \mathbf{f} = 0 \]

2. (a) Evaluate $\int (\mathbf{f} \times \mathbf{g}) + (\mathbf{g} \times \mathbf{h}) + (\mathbf{h} \times \mathbf{f})$.

Compulsory Question

Select one question from each section.

Note: Attempt five questions in all. Q. 1 is compulsory.

Maximum Marks: 40

Time: Three Hours

Paper-BM-123

Vector Calculus

1474

SEM-22

GESEM-22

Total Pages: 3
4. Prove that a spherical coordinate system is self-reciprocal.

5. Express the vector field \( \mathbf{F} = 2\mathbf{r} - 3\mathbf{\hat{z}} \) in spherical.

6. a) Evaluate the integral of \( \phi \) over the surface \( S \) of a cube bounded by the coordinate planes.

b) Evaluate by Stokes' theorem.

c) Evaluate by Green's theorem.

SECTION II

4. The necessary and sufficient condition for the vector \( \mathbf{F} \) to have a constant magnitude is \( \frac{\mathbf{F}}{\|F\|} \cdot \mathbf{F} = 0 \).

SECTION III

4. (a) Prove that the spherical coordinate system is self-reciprocal.

5. a) Explain geometric interpretation of \( \phi \).

b) Evaluate the integral of \( \phi \) over the surface \( S \) of a cube bounded by the coordinate planes.

c) Evaluate by Stokes' theorem.

d) Evaluate by Green's theorem.

SECTION IV

4. Prove that the spherical coordinate system is self-reciprocal.
3. Derive an expression for moment of inertia of a solid cylinder

2. State and prove Theorem on Parallel axes and Perpendicular axes.

UNIT-I

2. Speed, Average Speed and Root mean Square Speed.

(d) Define and write down the formula for Most Probable

2. Gas?

(c) Under what conditions real gases behaves as ideal

2. When are the limiting values of Poison Radio?

(i) Discuss the Physical Significance of Moment of

Compulsory Question

Selecting one question from each unit.

Note: Question No. 1 is Compulsory, Attempt five questions by

Maximum Marks: 40

[Time: Three Hours]

Paper-Physics-I

THEORY OF CASES

PROPERTIES OF MATTER AND KINETIC

1477

CSE/M-22

3. Total Pages: 3

Roll No. ..................
UNIT-IV

8. Discuss mean free path of a gas. Derive an expression of the gas.

7. (a) Derive expression for kinetic theory of gases and prove that the pressure exerted by the ideal gas is 2/3 of the molecular volume at 273°C.

UNIT-III

8. What do you mean by bending moment? Derive an expression for bending moment of beam clamped at one end and loaded at other (ignoring the mass of beam).

6. When are equal to half of shear strain.

4. (b) Derive the relation between Young Modulus, bulk modulus and Poisson Ratio.

3. How the Maxwell distribution of velocity can be

2. (b) Find the most probable speed for nitrogen at 20°C.

1. Given that the molecular weight of nitrogen is 28.

\[ R = 8.315 \text{ J mol}^{-1} \text{ K}^{-1} \]

UNIT-II

6. (a) Derive an expression for thermal conductivity from veried experimentally.

2. (b) How the Maxwell distribution of velocity can be
3. What is an ideal diode? Why an ideal diode is called a Zener diode as voltage regulator?

2. Explain the working of a Zener diode break-down. Explain the working of a Zener diode break-down.

UNIT I

2. Explain the criterion of sustained oscillations in an oscillator.

2. What is the best transistor configuration for amplifiers? Why is the base current of a transistor important?

2. Why the mobility of electron is higher than hole?

Compulsory Question

Each unit question No. 1 is compulsory.

Note: Attempt five Questions in all. Selecting one question from each unit.

Maximum Marks: 40

Time: Three Hours
5. Draw the functional block diagram of a Cathode Ray Oscilloscope. Explain how the function of each block in brief.

UNIT III

6. Discuss the working of an Resistance-Capacitance coupled amplifier. Explain how the negative feedback in an amplifier improves the input impedance, band width and gain stability.

7. (a) What do you mean by negative feedback in transistor amplifiers? Explain how the negative feedback in an amplifier improves the input impedance, band width.

UNIT II

8. Discuss the working of a Cathode Ray Oscilloscope. Describe also how the frequency of a wave is measured by this instrument. Explain the function of each block in brief. The L.C. tuned circuit of a tuned collector oscillator is shown in the figure. Draw the circuit diagram and explain the working of a Hartley oscillator. Discuss the basic principle of an oscillator. Draw the circuit diagram.

3. What is open circuit point? Why it is selected at the base of a transistor? What are the requirements of proper effective in a semiconductor? What is a transistor? Why it is necessary to bias a transistor? What is the base biasing. Why it is necessary to bias transistors in C.E. configuration.

A transistor has a base current of 40 mA if the collector current is 100 mA. Find its output impedance.

3. What is a transistor? Describe its mechanism in terms of charge transference. Why do we say that a transistor is useful in a circuit?

LED is superior to other lamps? How are different colored LEDs made? What is LED? Describe its mechanism in terms of charge transference. Why do we say that a transistor is useful in a circuit?
I. Draw the structure of benzyl alcohol.

II. Why does xenon (Xe) have a higher boiling point than iodine (I)?

(a) Which of the following is a monoprotic acid and which one is a polyprotic acid?

(b) Why is $H_3PO_4$ or $H_4PO_7$?

(c) Name the very first compound of noble gases which was synthesized by N. Bartlett in 1967.

(d) What is again referred to?

(e) Write the formula and draw the structure of borazine.

(f) Why does $H_3PO_4$ or $H_4PO_7$?
SECTION A

1. Explain why H,O is a liquid whereas H,S is a gas at room temperature.

2. Write the structure of XeOF, a XeF, molecule.

3. Explain, why sodium metal cannot be stored in water.

4. Draw the structure of [Ca(EDTA)]²⁻.

5. Write a short note on Van der Waals forces.


7. Discuss the structure of AC1₃.

8. Discuss the structures of PO₄ and PO₄³⁻.

9. Arrange the following acids in decreasing order of their acidic strength: HBr, HCl, and HI.

10. Why Penicillamine are more covalent than ethane?

11. Discuss the importance of hydrogen peroxide.

12. Discuss properties and uses of fluorocarbons.

13. Discuss structure and bonding in dopamine.

14. Discuss structure and bonding in dopamine.

15. Why does carbon show higher oxidation number of Al²⁺.

16. Discuss band model of bonding in metals.

17. Why does lithium form normal oxides, sodium form peroxides and superoxides?

18. Explain, why sodium metal cannot be stored in water.

19. Discuss n-type and p-type semiconductors with example.

20. Why water has maximum density at 4°C.

21. Explain, which has higher boiling point: o-nitrophenol.
SECTION A

1. What is the basic principle underlying conductometric
   expression for half-life period of a reaction? Write a general
   expression for half-life period of a reaction. Why does the
   pH of the buffer solution constitute of
   (a) Define molar conductivity.
   (b) Why is the basic principle underlying conductometric
   (c) What is the buffer factor? What does it tell?
   (d) Write the units of molar conductance.
   (e) Write the units of molar conductance for thin layer reaction.
   (f) What is the buffer factor? What does it tell?
   (g) Why does the pH of the buffer solution constitute of
   (h) Write the units of molar conductance for thin layer reaction.
   (i) Why does the pH of the buffer solution constitute of

2. (a) Derive an expression for the rate constant for a second
   order reaction of the type 2A → B. Products.

SECTION B

(a) Explain the type of titration curve obtained in the
   conductometric titration of:

(b) How conductometric measurements can be used to find
   the solubility of a sparingly soluble salt?

(c) CH₃COONa solution with HCl solution.

(d) CH₃COONa solution with HCl solution.

(e) How conductometric measurements can be used to find
   the solubility of a sparingly soluble salt?

(f) CH₃COONa solution with HCl solution.

(g) CH₃COONa solution with HCl solution.

(h) CH₃COONa solution with HCl solution.

(i) CH₃COONa solution with HCl solution.

(j) CH₃COONa solution with HCl solution.
(1) When is buffer capacity needed?

(2) The degree of dissociation of acetic acid at that dilution.

(3) Equilibrium constant of $CH_3COOH$ at some other temperature.

(4) Give the buffer solution and explain how it works.

(5) Use the buffers table to find the $pH$ of the solution.

(6) How do specific conductivity and equivalent conductance differ?

(7) How many moles of base are required to react completely?

(8) Which base solution is more concentrated and which one is more dilute?

(9) How do specific conductivity and equivalent conductance differ?

(10) Why does the rate of reaction become nearly double for $H^+$?
2. (a) Explain Saytzeff rule with the help of

SECTION-A

reaction.

(c) Give the preparation of Ethyl bromide by Hunsdiecker

aromatic electrophilic substitution.

in Nitration and Friedel Crafts Alkylation reactions in

(g) Give the name and structure of electrophiles generated

higher boiling point, and why?

(q) One of cis-2-butene and trans-2-butene, which has

CH₂

\[ \text{CH₃} - \text{CH} = \text{CH} - \text{CH} = \text{CH} \]

I. (a) Give IUPAC names of the following compounds:

Compulsory Question

Compulsory: Select two questions from each Section.

Note: Attempt five questions in all. Question No. 1 is

Paper-CH-106

ORGANIC CHEMISTRY

1481

CSM-122

Total Pages: 3

ROLL NO. ........................................

TIME: Three Hours

Maximum Marks: 32
(a) Discuss the factors affecting $S_N^2$ reactions.

(b) Discuss the mechanism and stereoselectivity of $S_N^1$ reactions.

9. (a) Convert $\text{CH}_2\text{Br}$ into $\text{CH}_3\text{NH}_2$.

(b) Give an example of aromatic substitution in Ar$^+$ halides.

8. (a) Give addition-elimination mechanism of nucleophilic

---

SECTION-B

1. (a) Explain the acidic nature of terminal alkanes.

(b) Give their classification with one example.

2. (a) Explain the addition of HBr to 1,3-pentadiene alone.

(b) Explain the addition of HBr to 1,3-pentadiene with two different mechanisms.

3. (a) Explain with suitable examples.

(b) Write the reaction and mechanism of dehydrogenation of $\text{NH}_2\text{COH}$.

4. (a) Explain $\alpha$-directing and activating nature of $\text{NH}_2$. Give two groups.

(b) Explain the reaction and mechanism of chlorination of benzene.

5. (a) Give the reaction and mechanism of sulfonation of aromatic, aliphatic and non-arenic aromatic.

(b) What are annelated? Give one example each of an azulen, benz[a]anthracene and a polycyclic aromatic hydrocarbon.

6. (a) Explain the addition of HBr to 1,3-Methyl-1-ene.

(b) Explain in detail the rearrangement process accounting for 2-bromo with conc. $\text{H}_2\text{SO}_4$ to give alkene.
Why don't teachers have time to answer pupils'

questions?

Name the essay and its author.

Information.

that emphasise comprehension rather than an excess of

right and encourage more schools, smaller classes and syllabi

high for our law-makers to get their priorities

questions or to encourage a new line of thinking? If will

produce and holidays, who has time to answer pupils'

addressing high classes and many outside informations like

This time-counter is often held as the prime culprit with

at the end:

I. Read the following passage and answer the questions given:

1. Attempt all questions

Note: Attempt all questions

Time: Three Hours

Maximum Marks: 40

Paper II

ENGLISH

CSEMA22

1482

Total Pages: 7

ROLL NO.
3. Explain with reference to the context: Most of the previous civilizations known to history came to end because victorious civilizations broke in upon them and captured them. This was the fate of Babylon and Assyria; it happened over and over again in India and China. It brought about the decline of our own. This was the fate of Babylon and Assyria; it happened over and over again in India and China. It brought about the decline of our own.

3. Use the word "wholly" in a sentence of your own.

OR

(iii) Name the essay and its author.

(c) What will undoubtedly disappear from the Hind.

2. Explain with reference to the context: Most of the previous civilizations known to history came to end because victorious civilizations broke in upon them and captured them. This was the fate of Babylon and Assyria; it happened over and over again in India and China. It brought about the decline of our own. This was the fate of Babylon and Assyria; it happened over and over again in India and China. It brought about the decline of our own.

2. Use the word "wholly" in a sentence of your own.

OR

(iii) Name the essay and its author.

(c) What will undoubtedly disappear from the Hind.

(1) Why does C.E.M. read compare the modern civilization with previous ones? What does the comparison show?

3. Answer any four questions in about 30 words each:

(a) What does DR. Ambedkar say about unpronounceability and

(b) What is DR. Barnard's view about apartheid?

(c) Which innovation did Netherland introduce for telegraphy.

(d) Why does C.E.M. read compare the modern civilization with previous ones? What does the comparison show?
Sometimes, rich people are not as happy as we think they
round. Yet when we feel like this, we make a mistake.
For their living, but can do just what they please all the year
or do. How we envy the rich people who have not to work
We sometimes think it would be very nice to have no work

5. Translate the following passage into Hindi:

6. Summarise the main argument of 'Huck Civil's' essay "In
humanisation of War".

4. What aspects of our civilization does CEFM lead choose
or property for women.

5. Explain the far-reaching effects of unequal ownership
or and misery as war poisons?

16) Why is the point of comparison between Wall Whimman
mechanization in wasteful?

How does Huck Civil raise the growth of

OR

OBSCURE:

Here comes which the ordinary uneducated Hindu must
be aware of.
as a considerable or high official of the state, whether as
including even conflicts, will gradually disappear. Whether
today is disagreeable to the intellect, our difficulties,
wealth and service is happiness. The greatness of crime in India
Work, unceasing work, should be our watchword. Work is
set-up, it is that we should put into action our full strength.
their needs to be stressed more than any other in the new
new responsibilities satisfactory. If there is any one thing
should so discipline ourselves as to be able to discharge our
society's role and creation of new values for all one. We
selves, fitness, fitness, and narrowed to Outlook. Our freedom
opportunities, but it also implies that we should discard
Paragraph has already given us new signs and new

6. 
Make a précis of the following passage and give it a suitable
heading.

7. 
(a) Præstëra.
(b) Dearest,

8. 
Write a letter to the editor of a newspaper highlighting the
fundamental law of progress.

9. 
Write a letter to the Deputy Commissioner of your district
complaining about encroachment made by shopkeepers in
your area.

Questions

(i) What is the root cause of all unhappiness?
(ii) What is a curse, and what is a blessing?
(iii) What kind of a man is a slave to his desires?
(iv) Give the meanings of the following words and use
them in sentences of your own:

(a) Dearest
(b) Præstëra.
(a) Briefly answer the following:

1. Give short answers to the following:

(i) Compulsory Question

(ii) Well labelled diagrams.

Each unit question 1 is compulsory. Draw neat and

Note: Attempt five questions in all. Select two out of five questions from

Maximum Marks: 40

Time: Three Hours

Paper-I
DIVERSITY OF ARCHAEOSTATES

1485-22

Total Pages: 3
SECTION B

5. Discuss the following in fungi: Agent

6. Explain the locality and recognition of the sporophyte agent.

SECTION A

2. Write elaborate notes on following:

3. What is the significance of Marchantia and Anthoceros?

4. Draw suitable diagram of Anthoceros.

5. Discuss the evolutionary importance of the sporophyte.

6. Primary and secondary prothallia.

7. Phyletic and its formation.

8. Dehiscent or capsule and dispersed of spores.

9. Give a detailed account of Marchantia Gametophyte and process of fertilization in Pteridophytes.

7. Draw suitable diagram of Anthoceros.

8. Explain the identity characters of Marchantia and Anthoceros.

9. Give a detailed account of Marchantia Gametophyte and process of fertilization in Pteridophytes.

8. Describe the structure of sporophyte of Anthoceros with diagram.
UNIT-I

2. Discuss the process of DNA replication in prokaryotes.

8x1 = 8

(a) What are plasmids?
(b) What is operon concept?
(c) What is transcription?
(d) Define transposons.
(e) What are duplicate genes?
(f) Define linkage.
(g) What do you mean by genetic code?
(h) Difference between a nucleotide and a nucleoside.

I. Answer the following:

Compulsory Questions

(4x5 = 20)

Attempt five questions in all. Select two questions from each unit. No. 1 is compulsory (short answer).

Note: Each question carries equal marks.

Time: Three Hours

Maximum Marks: 40

Paper-II

GENETICS

1486

GSEM-22

ROLL No. 2

TOTAL PAGES: 2
UNIT II

4. Write notes on:

(a) Linkage maps
(b) Law of independent assortment
(c) Incomplete dominance
(d) Inhibitory genes

5. Write notes on:

7. Explain the process of translation in protein synthesis.

8. How gene action is regulated in prokaryotes?

9. Write notes on:

5. Role of mitochondria in cytoplasmic inheritance.

3. 3-D structure of proteins.
I. Give short answers to the following questions:

1. Question No. 1 is compulsory.

From Section A and B, draw diagrams whenever required.

Note: Attempt five questions in all. Select two questions each.

Time: Three Hours

Maximum Marks: 40
7. What is dominance? Explain different patterns of dominance.

2. Which is linkage? State the Chromosome theory of linkage. Give an example of a suitable example.

6. (a) Explain the Law of Independent Assortment with the help of a suitable example.

SECTION B

4. Describe the Male Reproductive system of Grasshopper.

5. (a) Explain the Respiratory system of Grasshopper.

3. (c) Labelling diagram of the Male Reproductive system of Grasshopper.

2. (b) Difference between Meiosis and Meiosis in Annelids.

2. (a) Difference between Meiosis and Meiosis in Annelids.

4. Explain the following:

2. (c) Special Receptors of the Rhizome.

2. (b) Mouth parts of Grasshopper.

2. (a) Economic importance of Orthoptera.

3. Write notes on the following:

7. Characters and examples of each group.

2. Classify the Phylum Annelida into order level. Write the following:

SECTION A

SECTION-B

5. (a) Describe the structure and morphology of Tomatina

(5+2) (7+4)

(b) Write down the various external characters of

(b) Write down the various internal characters of

(5+2) (7+4)

4. (a) Write down about the general characters and
classification of Phyllum Mollusca up to order level.

(4+3) (7+4)

(b) Make a list of various larvae of echinoderms.

3. (a) Describe the water vascular system of Aschelminthes.

(5+2) (7+4)

(b) Give an account of Torson and Detorsion in Cestodes.

2. (a) Describe the Diphymema larvae of echinoderms.

(b) Make a well labelled diagram of pallial complex of

SECTION-A

7. Describe the following abnormalities:

(a) Supenormal and Supernormal.

(b) Cystic and multiple Cystic.

(c) Down Syndrome.

(d) DNA Finger printing.

(ii) Aneploidy.

(i) Frame shift mutation.

9. Explain the following:

(7+4)
UNIT 1

Conventional transistors?

What are the advantages of the PNP over the

 bonded signal amplification?

Why transformer coupling is not suitable for small

 What are the requirements of a biasing network?

 What do you mean by transistor biasing?

Compulsory Question

Answer complete five questions by selecting any

 Question No. 1 is compulsory.

 Answer five questions in all.

 carry equal marks.

Note: (i) There are nine questions in this paper. All questions

Maximum Marks: 40

Time: Three Hours

Paper-1

ELECTRONIC DEVICES AND CIRCUITS-II

1991

1491

SEM-22

Total Pages: 3

Roll No.
UNIT-I

2
(a) Why enhancement MOSFET cannot be used in depletion mode?
(b) Deplete pinch off voltage in field effect transistor.

6
Draw and explain the drain characteristics of N-channel enhancement MOSFET.

9. (a) Draw and explain the drain and transfer characteristics.

UNIT-II

5
(b) Discuss quasilinearity why self-bias circuit is an ideal non-linear circuit.

9. (a) Explain voltage divider biasing arrangement in

UNIT-III

5
(a) With the help of circuit diagrams, discuss direct coupled amplifier.
(b) Explain frequency response of two stage R-C coupled amplifier.

7. (a) Calculate its overall gain.
(b) Discuss advantages and disadvantages of transformer coupled R-C amplifier.

3

2
Perform the following using 2's complement method:
(a) 3C27.4D
(b) B28

2. (a) Convert the following hexadecimal numbers to octal and decimal numbers to octal:

UNIT-I

2
1 (i) Define Party and Party Bill
2 (e) Define Profit and Profit Out
1 (d) Define Double Inextension
2 (c) Give examples
What is meant by SOP and POS form of Boolean
1 (b) Distinguish between 1's and 2's complement
1 (a) What are the advantages of binary number system

Compulsory Question

Compulsory. Select one question from each unit.

Note: Attempt five questions in all. Question No. 1 is compulsory. Select one question from each unit.

Maximum Marks: 40

Time: Three Hours

Paper-II

DIGITAL ELECTRONICS-I

1492

GSEB-22

Total Pages: 3

ROLL NO. ..........................
UNIT-I

5. Design a railway track switching circuit using AND, OR and NOT gates for the following operations:
- Draw and explain a 2's complement adder/subtractor.
- Design a full-subtractor using two half subtractors.

8. (a) What is a full-subtractor? Draw and explain the circuit.
(b) Design the working of CMOS NOR gate with circuit.
(c) Discuss MOS Inverter circuit.
(d) Discuss two families.
(e) Write a short note on Unipolar and Bipolar Logic.
(f) Discuss the TTL NOR gate. What are its limitations?

UNIT-II

1. Write the binary, octal and decimal equivalent of the given BCD number 1010 1101.
2. What are BCD numbers? Explain with an example.
3. Explain the BCD to binary conversion.
4. What are the advantages of a BCD code? Explain with an example.


UNIT-1

Language

2. What are the rules for writing constants and identifiers in C.

2. Write short note on assignment statement in C.

Compulsory Question

Marks

Compulsory Question No. 1. All questions carry equal marks. Select one question from each unit in addition to all. So, select one question from each unit in addition to all.

Note: A candidate will be required to answer five questions in

Time: Three Hours

Paper I

PROGRAMMING IN C

1993

GSE/M-22

Roll No. ------------

Total Pages: 2
UNIT IV

8. Explain the different types of loop control statements available in C. Give suitable examples.

UNIT III

8. Explain various decision making control structures available in C. Give suitable examples.

UNIT II

8. Explain the purpose and syntax of each printf(), printf() and print() functions in C. Give suitable examples.

7. Define the purpose along with its purpose. Explain the different

8. Explain various types of operators available in C. Give suitable examples.
Write two coding scheme for weighted code systems.

Register scores high low helps.

What is number in binary and hexadecimal?

Convert (1010111101001) to octal and hexadecimal.

What is number in binary and octal for 2AP?

UNIT I

(8) Define Hamming distance.

Make Venn diagram for OR and AND gate.

Prove by induction (a + c) + q = a + c + q.

Write the full form of ASCII EBCDIC.

Compulsory Question

one question from each unit

Note: Attempt four questions. Q. No. 1 is compulsory. Select 40 marks.

Time: Three Hours

Paper II

LOGICAL ORGANIZATION OF COMPUTERS

1494

CSEM-22

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

Total Pages: 3
UNIT-II

8 Draw and label 3 Variable K-Map and solve for four

8 \[ abc + abc + abc + cde \] (i)

8 Solve using Boolean Algebra:

8 Define Boolean Algebra different from ordinary

UNIT-IV

8 Make code converter from 8421 to 10 cycle.

8 (b) Make circuit 10 to 4 line encoder.

7 (a) Make circuit 10 to 4 line encoder.

UNIT III

8 Explain Full Adder using K-Map.

Z = Z0, Z1, Z2, 7, 0, 1, 15.

8 (ii) Solve using K-Map

5 (b) Draw and label 3 Variable K-map and solve for four

8 \[ abc + abc + abc + cde \] (i)

8 Solve using Boolean Algebra:

8 Define Boolean Algebra different from ordinary

UNIT-II

8 -36-02 and -09-21.

8 Performance T's complement arithmetic

3 (a) Write note on Fixed point and Floating point notation.
Course: III

Human Physiology

GSE/M-22 1803

Note: Attempt five questions in all. Selecting at least one question from each Unit. Q. No. 9 is compulsory. All questions carry equal marks.

III. Total Marks: 60

Time: Three Hours

(b) Pancreas

(a) Liver

(b) Various types of bones present in human body.

(c) Intermuscular connective tissue.

(d) Interosseus connective tissue.

(e) Osmotic equilibrium in body fluids. 

(f) Explain the importance of and process of photosynthesis.

I. Explain the importance of and process of photosynthesis.

Unit-I (Page 1)
8. Write in detail about Peripheral Nervous System.

9. Write in detail about the following terms:

   (a) Acetylcholine (b) Acetylcholinesterase (c) Cholinergic (d) Parasympathetic (e) Sympathetic

6. Fill in the blanks of Lungs. Explain the structure of

   (a) Lungs
   (b) Functional of Lungs

5. Define Excretory System. Explain the structure and

   (a) Nephron (b) Renal Papilla (c) Renal Pyramids (d) Renal Tubules

4. Explain the structure and function of Heart.

3. Define

   (a) Brain stem (b) Thoracic cavity (c) Brain (d) Spinal cord

2. Why is the brain covered with meninges?

   (a) To provide protection (b) To provide support (c) To provide nourishment (d) To provide sensory input
I. Write short notes on the following:

1. Compulsory Question (मित्तरण क्षेत्र)

   विश्वास और विश्वासों की सन्धि और समूहों का विवाह और विवाहों और विवाहों के प्रबन्धन और प्रबन्धन के प्रबन्धन

   विवास और विवाहों की सन्धि और समूहों का विवाह और विवाहों के प्रबन्धन और प्रबन्धन के प्रबन्धन

   विवास और विवाहों की सन्धि और समूहों का विवाह और विवाहों के प्रबन्धन और प्रबन्धन के प्रबन्धन

   विवास और विवाहों की सन्धि और समूहों का विवाह और विवाहों के प्रबन्धन और प्रबन्धन के प्रबन्धन

GSE M-22

Total Pages: 03
1. Write short notes on the following:

Compulsory Question (2 marks each)

Exercise

Note: Attempt all the questions in all the sections. All questions carry equal marks.

Time: Three hours

Paper 112
CARE
PRENATAL AND INFANT GROWTH AND DEVELOPMENT

GSE/M-22

Roll No. 03

Total Pages: 03
6. While showing on the following physical characteristics

7. Discuss the social development of the newborn.

8. Discuss child feeding practices, nutrition and toilet training.

UNIT III (II)

2. Describe the physiological changes that occur during pregnancy.

3. Describe the stages of delivery.

4. Explain the discomformities during pregnancy.

5. Describe the factors affecting prenatal development.

6. While showing on the following physical characteristics.

7. Discuss the social development of the newborn.
1. What do you understand by laundry? Describe the laundry process.

2. Discuss laundry equipment and their use.

Note: Attempt five questions in all. Selecting two questions from each Unit. No. 9 is compulsory. All questions carry equal marks.

Maximum Marks: 40

Time: Three Hours

Paper 113

FABRICS

LAUNDRY SCIENCE AND FINISHING OF

GSM-22

ROLL NO. .....

TOTAL PAGES: 03
What is the importance of finishing processes? Explain.

Distinguish between brushing and laundering.

5. What are different types of silk? How silks can be

unit II (ENG)

4. What do you understand by bleaching? Discuss the

3. When is soap? Discuss the types of soaps and methods

2. Write in detail about the care and storage of silk

1. Write briefly:

9. Discuss special purpose finishes. Explain any one in

8. Composition of Soap

7. Write in detail about brushing and laundering.

6. Write in detail about the care and storage of silk

5. What are different types of silk? How silks can be

4. What do you understand by bleaching? Discuss the

3. When is soap? Discuss the types of soaps and methods

2. Write in detail about brushing and laundering.

1. Write briefly:

9. Discuss special purpose finishes. Explain any one in

8. Composition of Soap

7. Write in detail about brushing and laundering.

6. Write in detail about the care and storage of silk

5. What are different types of silk? How silks can be

4. What do you understand by bleaching? Discuss the

3. When is soap? Discuss the types of soaps and methods

2. Write in detail about brushing and laundering.

1. Write briefly:

9. Discuss special purpose finishes. Explain any one in

8. Composition of Soap

7. Write in detail about brushing and laundering.

6. Write in detail about the care and storage of silk
I. Define the following:

(a) Commitment

(b) Goal

(c) Standards

(d) Management

(e) Family Life-cycle

2. Compulsory Question (All Questions Carry Equal Marks)

Note: Attempt Five Questions In All, Selecting Two Questions From Each Unit. No. 1 Is Compulsory. All Questions Carry Equal Marks.

Maximum Marks: 40

Time: Three Hours

PAPER: II

INTRODUCTORY HOME MANAGEMENT

1806 GE/M-22

ROLL NO: 03

TOTAL PAGES: 03
Unit I (इकाई I)
1. What is home management? Explain its objectives. 8
2. गृह व्यवस्था क्या है? इसके उद्देश्य बताएँ।
3. What is the role of family life-cycle in home management? 8
4. गृह-व्यवस्था में परिवारिक जीवन-चक्र की क्या भूमिका है?

Unit II (इकाई II)
4. Discuss the qualities of a good home maker. 8
5. एक अच्छी गृही के गुणों की विवेचना कीजिए।
6. What do you mean by managerial skills? How can you develop these skills? 8
7. व्यवस्था संबंधी योग्यताओं से आप क्या समझते हैं? आप इन योग्यताओं को और विकसित कर सकते हैं?

Unit III (इकाई III)
8. Define Values. Discuss the characteristics of values. 8
9. मूल्य क्या है? इसकी विशेषताओं की विवेचना कीजिए।
10. What do you mean by goals? Discuss characteristics of goals. 8
11. लक्ष्य क्या है? इन्हें विशेषताओं के बारे में बताएँ।

Unit IV (इकाई IV)
12. Write down about different types of decisions. 8
13. विभिन्न प्रकार के फैसलों के बारे में लिखें।

9. What are Resources? Explain the common characteristics of resources.
10. साधन क्या हैं? इनकी सामान्य विशेषताओं के बारे में बताएँ।
1. Briefly describe the following:

- Symptoms of Iron deficiency
- Effect of deficiency on body in body
- Role of vitamin K in blood clotting
- Sources of Carbohydrates

Note: Attempt five questions in all, selecting two questions from each Unit. No. 1 is compulsory. All questions carry equal marks.

Maximum Marks: 40

Paper : 115

BASIC NUTRITION

1807

GSE/M-22

Total Pages : 03
I. (a) Draw the structures of the following

1. T
2. U
3. P
4. L

Note: Attempt five questions in all. Q. No. 1 is compulsory.

Maximum Marks: 40

Time: Three Hours

Course: II6

NUTRITIONAL BIOCHEMISTRY

GSE/M-22

1808

ROLL No. ____________________________

Total Pages: 04

Explain any two of the following:

(a) Phosphorus as nutrient.
(b) Nicotinic acid soluble vitamin.
(c) Oxidoreductases and transerase enzyme.
8. Discuss various factors affecting enzyme activity.

7. Discuss the biological functions and deficiency syndromes of vitamins D and Vitamin E.

6. Discuss structure, functions, and deficiency symptoms of vitamin B12.

5. Discuss the structural features of DNA and RNA.

4. Define reducing sugars with their names and draw simple structures of any two.

3. What are essential fatty acids? Give names and structures of any two.

2. Explain the process of constitution of lipids in small intestine.

1. Enlist various functions performed by proteins in biological systems.

A. What are the forces involved in two-dimensional surface structure of one reducing and one non-reducing sugar.

B. Draw the structure of a simple sugar.

C. Define the reducing sugars with their names and draw simple structures of any two.

D. What are the essential fatty acids? Give names and structures of any two.

E. Explain the process of constitution of lipids in small intestine.

F. Enlist various functions performed by proteins in biological systems.

G. What are the forces involved in two-dimensional surface structure of one reducing and one non-reducing sugar.

H. Draw the structure of a simple sugar.

I. Define the reducing sugars with their names and draw simple structures of any two.

J. What are the essential fatty acids? Give names and structures of any two.

K. Explain the process of constitution of lipids in small intestine.

L. Enlist various functions performed by proteins in biological systems.

M. What are the forces involved in two-dimensional surface structure of one reducing and one non-reducing sugar.

N. Draw the structure of a simple sugar.

O. Define the reducing sugars with their names and draw simple structures of any two.

P. What are the essential fatty acids? Give names and structures of any two.
8. Supply samples.

4. You are interested in the purchase of plastic goods. Write

**Unit II**

8. Describe the basic framework of a business letter.
8. What is a Business Letter? Define its objective.

**Unit I**

10. Information
10. Difference between active voice and passive voice
10. Aim of letter of reference
10. Importance of a business letter

8. Write short notes on the following:

8. 4X2=8

(Compulsory Question)

Carry equal marks.

Select one question from each Unit. All questions selected must be answered by the remaining four questions are to be attempted by the examinee.

Note: Attempt five questions in all. Q. No. 1 is compulsory.

Time: Three Hours
Maximum Marks: 40

BSIT-201

COMMUNICATION SKILLS (ENGLISH-II)

BSIT/M-22

26094

Roll No. ................................................................. 04

150

4

1-26094
Has Ram been cheated by you?
Why did he hit you?
He will play cricket tomorrow.
What do you want?
Have you written the letters?
He does not like mangoes.

7. Change the voice:

(a) Ram lunch when I reached.
(b) He whenever he is in tension.
(c) Two and two equals.
(d) In the east.

8. Fill in the blanks with correct form of verb:

He

9. Fill in the blanks with correct form of verb:

He

With III

in that direction

of being the best mothers, if their children were

enough of being the best mothers, if their children were

ensured that a great mistake, since they are capable

does not give scope for the exercise of their intellectual

many highly educated women despite it, thinking that it is

necessary to knowledge is understood, the more intellectual

child in knowledge without instruction. The more the

Without knowledge is as incapable in dealing with

great deal of knowledge is required as well. When

parents apply, but theason with personal attention a

made clear that no one can be a good parent without

of physiology and something of hygiene. It should be

Of course, both boys and girls ought to learn something

the knowledge that may be useful to them in that capacity

be mothers and they should acquire some rudiments of

be mothers and they should acquire some rudiments of

should be taught, or expected that one day they are likely to

should be taught or expected to expect that one day they are likely to

righteousness demanded which justifies his cruelty. A case for the

righteousness demanded which justifies his cruelty. A case for the

enlightened miseries among the helpless, rebel against the

enlightened miseries among the helpless, rebel against the

of God, people who care for children, or do not enjoy

of God, people who care for children, or do not enjoy

example discerned to humanity towards the glory

example discerned to humanity towards the glory

only maintained by heartless domination, who think that

only maintained by heartless domination, who think that

prospect of their having was cut off. This view is now

prospect of their having was cut off. This view is now

no ill if the children are disturbed or insane, even if there is no

no ill if the children are disturbed or insane, even if there is no

they come so far the mother’s health is ruined, even if

they come so far the mother’s health is ruined, even if

Young people should be led to realize that it is a very

Young people should be led to realize that it is a very
4. Find the third divided difference with arguments 2, 3, 5, 7.

5. Given the function \( f(x) = x^3 - 2x \), find the value of \( f'(2) \) when \( x = 2 \).

(c) Define Runge-Kutta fourth order method to find an approximate value of \( y \) when \( x = 0.2 \), given the initial value of \( y \).

(e) Find the value of \( f \) and also the value of \( f' \) at the points \( x = 0, 1, 2, \ldots, n \) for the function \( f(x) = \cos x \).

Consider the polynomial \( P(x) \) given by:

\[ P(x) = ax^3 + bx^2 + cx + d \]

(a) Show that one of the roots of the equation lies in the interval [0, 1].

(b) Define the order of convergence of an iterative process.

(c) Show that one of the roots of the equation lies in the interval (0, 1).
1. \( z = 2 \) 
2. \( z = 2z + y + x \)
3. \( 6 = z + x + x \)
4. \( 8 = 2z + x + x \)

: equations

(a) Apply the equation method to solve the equations

(b) Apply the point substitution method to solve the equations

(c) Apply the Gauss Elimination method to solve the equations

Unit II

5. (a) Solve the following equations by Cramer's Rule:

Unit III

Example III - conditional conditions

(i) Define the condition and its form

(a) \( 0 = 3x + z \)

(b) \( 0 = 3x + z \)

(c) \( 0 = 3x + z \)

(d) \( 0 = 3x + z \)

: method

5. (a) Solve the following equations by Cramer's Rule:

Unit I
2. (a) Determine the values of \( p, q, r \) and \( s \):

\[ 0_1^0 (a) = 2^{10011} \]
\[ 0_1^0 (p) = 2^{100011} \]

Unit I

2. (b) Gate up to any number of inputs.

Can we increase the number of inputs to a logic family?

(c) Why CMOS family is preferred over TTL logic?

(d) Why an exclusive-NOR gate can make the truth table.

(e) Represent 12 and 12 in binary number system.

(f) A question carry equal marks.

Note: Attempt five questions in all, selecting at least one from each unit. No. 1 is compulsory.

Maximum Marks: 40

Time: Three Hours

Digital Electronics-1
BSIT-204

ELECTRONICS

BSIT/M-22

26097

Roll No. 04

150
Unit I

3. What are Schmit and Non-Schmit logic families? Explain in brief detail with examples and

5. Write the truth table for Schmit and Non-Schmit logic families. Explain in brief detail with

7. What is a DTL logic? Explain the working of a DTL logic for a logic family.

8. Define VOL and VOH with the help of voltage levels.

9. What is the working of DTL logic with the help of circuit diagram. When are its merits and
demerits?

Unit II

2. Give one example of each weighted codes. What do you understand by weighted and non-

3. Convert the following decimal numbers into BCD.

4. Convert the following decimal system numbers into BCD and then from BCD system numbers and then from BCD system numbers and then from BCD system numbers and then from BCD system numbers.

5. What is K-map? Minimize the given Boolean expression using K-Map and implement the

6. Prove the following Boolean identities:

Note: A' represents complement of A.

7. Design a NOT gate (inverter) using transistor. Make the help of its truth table.

8. Design a NOT gate (inverter) using transistor. Make

9. Design a NOT gate (inverter) using transistor. Make

10. Design a NOT gate (inverter) using transistor. Make

11. Design a NOT gate (inverter) using transistor. Make

12. Design a NOT gate (inverter) using transistor. Make
4 Signal
Describe the coherent detection of binary PSK
4 Generation
2 (a) Define FSK modulation technique and discuss its

Unit I
2 Define channel capacity.
2 (d) What is Syndrome in binary cyclic code?
2 for codes 1110 and 1101.
2 (c) Define Hamming distance and calculate its values.
2 (b) Define digital modulation.
2 (a) Define QPSK modulation.

Comprehensive Question

carry equal marks.
from each Unit. No. 1 is compulsory. All questions
Note: Attempt five questions in all, selecting one question
Maximum Marks: 40

B.E.T-205
ELECTRONIC COMMUNICATION II
B.E.T/M-22
R.O.No. 26098
Total Pages: 03
Discuss the information content of a message in probability 1/2 and 1/4 respectively. Find the source entropy and information rate of a source that emits one of the three symbols A, B, and C in a statistically independent sequences with source rate equal to the information rate of a.

8. \[ M = 2^2 \] 
\[ \begin{bmatrix} \text{0.03} & \text{0.02} & \text{0.01} & \text{0.02} \\ \text{0.05} & \text{0.05} & \text{0.05} & \text{0.05} \end{bmatrix} = [p] \]
\[ [X^0 X^1 X^2 X^3 ] = [X] \] 
(q) 

Design a linear block code with a minimum distance of three and message block of eight bits.

5. Design an encoder for the following generator polynomial for the message polynomial \( D(x) = \frac{x^3 + x^2 + x + 1}{x^4} \) 
\[ V(x) \] 
(q) 

Find all the code vectors of this code.
\[ \begin{bmatrix} 0 & 1 & 1 & 1 & 0 & 0 \\ 1 & 0 & 1 & 0 & 1 & 0 \\ 1 & 1 & 0 & 0 & 0 & 0 \end{bmatrix} = C \] 
(q) 

4. \( V(x) \) matrix is invertible, \( \hat{V}(x) \) is the generator polynomial.

Consider a (6,3) linear block code whose generator matrix is:
\[ \begin{bmatrix} 1 & 0 & 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 & 1 & 0 \end{bmatrix} \] 
(q) 

Design a (7,4) binary cyclic code.

A (15, 5) linear cyclic code has generator polynomial \( A(x) = x^5 + x^3 + x^1 \). Draw the error diagram and error detection and correction calculation.

3. (a) Design an encoder for the (7, 4) binary cyclic code.

(b) What is OQPSK? Discuss the modulation process of differential phase shift keying.

(c) Discuss the operation of OQPSK.
8 (b) When is Programming Planning its meaning and use?

UNIT I

2. (a) Define Flowchart and write Rules of Flowcharting.
3. (a) Write Advantages and limitations of Flowcharts.
8 (b) Write Advantages and limitations of Pseudocode.
8 (d) Name four types of charts used in Excel.
8 (e) What is the difference between Move and Copy command in Excel?
8 (c) What are symbols used in Flowcharts?

Note: Attempt Five questions in all, selecting one question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

Time: Three Hours

Maximum Marks: 40
SEQEUENCE AND SERIES

Paper-BM-241

Note: Attempt five questions in all, selecting one question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

Compulsory Question

1. (a) Define limit point of a set and give an example of a set which has three limit points?

(b) Give an example of a sequence which is bounded but not convergent.

(c) Discuss the convergence of the series:

\[ \sum_{n=1}^{\infty} \sin \frac{1}{n} \]

(d) Test the absolute convergence of the infinite series:

\[ \sum_{n=1}^{\infty} (-1)^{n+1} \frac{1}{n^2} \]

\[ 2 \times 4 = 8 \]

UNIT-I

2. (a) Define open set. Prove that arbitrary union of open sets is an open set.
I

(a) Test the convergence of the infinite product \( \prod_{n=1}^{\infty} \left( 1 + \frac{-u}{n\pi} \right) \)

(b) Test the convergence of \( 0 < p \cdot \frac{u}{\cos x} \)

(c) Test the convergence of \( \frac{(1/u)}{1+u(1-)} \)

(d) Test the convergence of \( x^{1/2} \)

(e) Discuss the convergence and absolute convergence of \( \sum_{n=1}^{\infty} \frac{u}{n\pi} \)

(f) Discuss the absolute convergence of the series \( \sum_{n=1}^{\infty} \frac{u}{n\pi} \)

(g) Discuss the convergence of the sequence \( \sum_{n=1}^{\infty} \frac{u}{n\pi} \)

(h) Show that a set having finite number of elements is a closed set.

(i) Prove that a closed subset of a close subset of a set is also close to the set.
2. Solve \( \frac{dx}{dt} = \frac{\frac{dx}{dt}}{\frac{dx}{dt}} \) where \( x = (0) \), \( \lambda \)
and \( z = (0) \).

Find the Laplace transform of \( e^{-x} \).

Find the Laplace transform of \( \cosh at \).

Show that \( \int_{0}^{\infty} x^2 f(x) dx = 2! \).

Prove that \( \int_{0}^{\infty} x^2 f(x) dx = 2! \).

(a) Compulsory Question

(b) Compulsory Question

(c) Compulsory Question

(d) Compulsory Question

(e) Compulsory Question

(f) Compulsory Question

(g) Compulsory Question

(h) Compulsory Question

(i) Compulsory Question

(j) Compulsory Question

(k) Compulsory Question

(l) Compulsory Question

(m) Compulsory Question

(n) Compulsory Question

(o) Compulsory Question

(p) Compulsory Question

(q) Compulsory Question

Note: Attempt five questions in all, selecting one question from each unit. Question No. 1 is compulsory. All questions carry equal marks.
6. (a) Using the Fourier sine transform, solve the partial differential equation:

\[
\frac{\partial x_p}{\partial t} = \frac{1}{\pi} \int_0^\infty \frac{(1+\xi)x}{1+\xi^2} \sin \xi x \text{d} \xi.
\]

Prove that:

\[
\left( \frac{\partial}{\partial t} + \frac{\partial}{\partial \xi} \right) \exp \left( \frac{\xi c}{1+\xi^2} \right) = (x)^{\mu} (1+\xi^2)^{-1/2} \text{d} \xi.
\]

(b) Find the Fourier transform of \( x(x) \).

UNIT I

7. (a) Let \( x = 0 \) and \( c = 0 \) where \( x \), \( t \), and \( c \) are constants. Solve the equation by separation of variables:

\[
\left( \frac{\partial}{\partial t} + \frac{\partial}{\partial s} \right) e^{-s} = 0.
\]

(b) Solve the convolution theorem, evaluate \( L^{-1} \),

\[
\left[ \frac{(1-s)}{1+s} \text{d} \sigma \right]_0^1 \left( \frac{\text{d} \log}{\text{d} \sigma} \right) \left[ \frac{1}{1+s} \right].
\]

(c) Evaluate \( L^{-1} \) of the integral.

UNIT III

8. (a) \( x(x) \) is a function of order \( u \), where \( u \) is a non-negative integer. Solve the equation by using the convolution theorem:

\[
\left( \frac{\partial}{\partial t} + \frac{\partial}{\partial s} \right) e^{-s} = 0.
\]

(b) Show that \( (x)(x) \) is a function of order \( u \),

\[
\left( \frac{\partial}{\partial t} + \frac{\partial}{\partial s} \right) e^{-s} = 0.
\]

UNIT II

9. (a) Using the convolution theorem, evaluate \( L^{-1} \),

\[
\left[ \frac{1}{1+s} \text{d} \sigma \right]_0^1 \left( \frac{1}{1+s} \right) e^{-s}.
\]

(b) Evaluate \( L^{-1} \) of the integral.

(c) Show that \( (x)(x) \) is a function of order \( u \),

\[
\left( \frac{\partial}{\partial t} + \frac{\partial}{\partial s} \right) e^{-s} = 0.
\]
2. (a) Draw a flowchart to find roots of a quadratic equation.

UNIT I

(i) Define Descartes rule of signs.

(6) Write down the flow chart of the divide-ladder.

(7) Define one-dimensional array.

(8) What is an escape sequence?

(9) Define character constants.

(10) What is a bit and byte?

Compulsory Question

Questions carry equal marks.

Note: Attempt five questions in all. Selecting one question

Maximum Marks: 30

Paper-BM-243

Numerical Methods

Programming in C and

1614

6SM/M-22

Total Pages: 3

Roll No.

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UNIT III

3. Solve the following equations by Cramer's method:

\[ 2x + y + z = 10 \]
\[ 2x + 3y - z = 20 \]
\[ 5x + 2y + z = -12 \]

UNIT I-IV

9. Solve the following equations by Cramer's method:

\[ 2x + y + 3z = 39 \]
\[ 2z - x + 4y = 2 \]
\[ 6z + x + 2y = 19 \]
3. (a) Explain the term optical rotation. Show how Fresnel and Malus
and Malus.

(b) Explain how Nicol prism can be used as polariser.

(c) State the theory of a Nicol prism to obtain plane polarised

3. (a) State and explain the law of Malus.

UNIT I

(d) What are unit planes and nodal planes?

(e) What is spherical aberration?

(f) Explain the term optical rotation and optically active

1. (a) Define Lorentz cosine series.

Compulsory Questions

The programmable calculator is allowed.

Questions carry equal marks. Use of scientific (non-

from each Unit. Question No. 1 is compulsary. All

Note: Attempt five questions in all selecting one question

Maximum Marks: 40

Time Allowed: 3 Hours

Paper - VII

WAVE AND OPTICS-II

1620

6SM/M-22

Total Pages: 3

Roll No.: 

P.T.O.
UNIT I

1. (a) What is chromatic aberration. Show that for chromatic aberration, the wavefront aberration.

2. (b) Characterized by a $2 \times 2$ matrix $R$,

$$
R = \begin{pmatrix}
1 & 0 \\
d & 1
\end{pmatrix}
$$

3. Show that reflection through a spherical surface can be given by the formula $R = 1 + \frac{1}{4}(y^2 + z^2)$, where $y$ and $z$ are the coordinates of the point on the surface.

4. (a) Find the system matrix for a thin lens and derive thin lens formula.

5. (b) Find the Fourier transform of $f(x) = e^{-x^2}$.

6. (a) Derive the convolution theorem for Fourier transform.

UNIT II

1. What are two types of losses in optical fibers?

2. What are the causes of surface reflection in a plano-convex lens?

3. (a) What is an optical fiber? Define and explain the terms.

4. Define the local length of a wave or dispersive power.

5. Calculate the local length of a lens of dispersive power 0.031.

6. Calculate the local length of a lens of dispersive power 0.022 to make a combination of lenses.

7. Work on Lawer's half-wave polychromator.

8. Define specific rotation. Explain the construction and working of Lawer's half-wave polychromator.

UNIT III

1. What is a polarization? Explain how to determine the value of a certain polarization.

2. What is a wavefront aberration and determine the value of Fourier transform.

3. What is the simple harmonic components?

4. Apply the Fourier transform to analyze a triangular wave.

5. Define complex form of Fourier series.

6. Define and prove Fourier integral theorem.
UNIT I

Try to discuss the following properties of lanthanides:

1. (a) Why is chemistry of all lanthanides identical?
2. (b) Why KNO₃?
3. (c) What happens when certain (III) nitrate is treated with
   (i) double salt formation
   (ii) tendency to form complexes.
4. (d) Discuss the following properties of lanthanides:

UNIT II

Solution

1. (a) How will you detect the presence of NO₃⁻ ion in the
   (d) II of qualitative analysis?
2. (b) Why does lead appear in Group I as well as in Group
   (c) II of qualitative analysis?
3. (c) Why does lead appear in Group I as well as in Group
   (q) VI of platinum group from platinum (Z = 94)?
4. (d) Why are transition elements given symbols as reaction
   (q) Why is Eu(III) more stable than Ce(III)?

Compulsory Question

1. Calculate and list table of allowed ion from each unit. Question No. 1 is compulsory. Use of
   calculator and log table is allowed.

Note: Answer five questions in all. Selecting two questions

Maximum Marks: 32

Time Allowed: 3 Hours

Paper-XI-CH-204

INORGANIC CHEMISTRY

1621

6SM/M-22

Total Pages: 3

ROLL NO.
UNIT II

1. A solution of NaCl is heated with MgO and conc. H₂SO₄. What happens when:

(a) KCl
(b) Sodium chloridite reacts with aqueous solution of 
(c) Sodium iodide is heated with MgO and conc. H₂SO₄
(d) Solution containing conc. HNO₃
(e) Ammonium nitrate is added to sodium phosphosphate

2. What is the difference between the presence of

(a) Ag⁺ ions and NO₃⁻ ions in a mixture

(b) How will you detect presence of BO₃⁻ ion in a mixture

3. What is the effect of pH, temperature and solvent upon the

(a) Solubility of a precipitate

4. How is NO₃⁻ ion removed in the presence of H₂O.

5. Give reasons why Group I A radicals are precipitated by

(a) Sodium hydroxide test for S²⁻
(b) Silver nitrate test for thiosulfate
(c) Nessler's reagent test for NH₄⁺

6. Discuss chemistry of following tests:

(c) La³⁺ is diamagnetic while Sr²⁺ is paramagnetic. Why?
(b) Why are the ions of activites coloured?
(a) Heavier activites do not form oxoacids. Explain.

7. Give simple examples of activites are covalent. Why? Justify your answer by

(a) The electronic configurations and positions of most of
(b) For Li
(c) What is chemical concretion? How do you account
(d) Explain which is more basic and why Cd(OH)₂ or VO₃⁻

(e) Why?
(f) Certain (IV) sulphide is used in redox reactions. Explain
P.T.O.

1623/56/3'350

with special oxidizing agents

(5) Give advantages of oxidation of alcohols into aldehydes

diazotization reaction of primary aromatic amine?

When happens if the temperature rises above 283K in

into iodobenzene

Write equation of conversion of benzene diazonium chloride

substituted ammonium ion of which is most soluble.

Among primary, secondary and tertiary amines the

amine

Law

Write expression for reduced mass used in Hookes'

Write the source of IR radiation in IR spectroscopy.

\[ 8 \times 1 = 8 \]

 Attempt any eight of the following:

1. Compulsory Question

From each Unit, Question No. 1 is compulsory.

Note: Attempt five questions in all, selecting two questions

Maximum Marks : 32

Paper—XI—CH—206

ORGANIC CHEMISTRY (THEORY)

1623

GSM-22

Total Pages : 3

Roll No.
UNIT-1
Prepare CH₃COOH using CH₃COCl.

(i) What is a halogenation reaction?
(ii) Write the balanced equation for the reaction of benzene with chlorine.
(iii) Why is benzene a better reagent for halogenation than alkenes?
(iv) What is the mechanism of the halogenation reaction?
(v) What are the typical products of the halogenation reaction of benzene?
2. Describe the role of taxonomists in relation to taxonomy.

UNIT I

Phylogenetic system of classification.

(a) Need for classification.
(b) Taxonomy.
(c) Clades in Phylogenetics.
(d) Phylogenomorphological evolution.
(e) Phylogenetic relationships.
(f) Effective publications.

1. Explain the following:

Compulsory Question

Questions carry equal marks. From each Unit select Question No. 1 is compulsory. All questions in all sections carry two marks each. The allowed time is 3 hours.

<table>
<thead>
<tr>
<th>Question</th>
<th>Marks</th>
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<tbody>
<tr>
<td>1</td>
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<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

Biological and Diversity of Seed

GS34/1-22

Total Marks: 40
UNIT II

1. Write the states in the following:
   (a) Principle of priority
   (b) Type concept

2. Write the names in the following:
   (b) Various types of access keys used for the identification of

3. What do you mean by biometric identification? Give an outline of

4. What do you mean by biometric identification? Describe its

5. Type by giving suitable diagram and examples.

6. Give an outline of biometric and random system of classification

7. Write the distinguishing features and economic importance of

8. Comment on the following:
   (a) Ascendance
   (b) Rainance
   (c) Ascendancy in Rainance

9. Write the following families:
   4x2=8
   2x4=8
   4x2=8
UNIT I

What is herpesvirus?
Define siphonogamy.
What is a vegetative state?
What is xenogamy?
Define pathologv.
What is the function of tapetum?
Name two essential whorls of the flower.

1. Write short answers of the following:

Comprehensive Question

Questions carry equal marks. Attempt five questions in all, selecting two questions from each unit. Question No. 1 is compulsory. All questions carry equal marks: 40

Paper II

PLANT EMBRYOLOGY

1627
CMW-27

Total Pages: 2
UNIT II

9. Write notes on the following:
   (a) Photosynthesis
   (b) Eukaryotes

8. Write notes on the structure of an animal.
P.T.O.

1628/M/1060/1.450

Therapist:

(i)

Reflex Action:

(i)

Pons Verilli:

(h)

Plein End:

(e)

Passenger's Organs:

(i)

Organs of Cort:

(e)

Gizzard:

(d)

Vibriase:

(c)

Conus Papillaris:

(b)

Anus Exsor Pad:

(a)

1. Explain the following in about 20 words each : 1\times 10=10

Compulsory Question

Note : Attempt five questions in all, selecting two questions

Time Allowed : 3 Hours

Page-1

LIFE AND DIVERSITY OF CHORDATES-II

68/MA-22

1628

Total Pages : 2

Roll No.
UNIT I

1. Write notes on temperature of birds.
2. Write a note on Syrinx of Pigeon.
3. Define in mammals.
4. Quill feathers in Pigeon.
5. Give a brief account of female reproductive system of Pigeon.

UNIT II

1. Draw well labelled diagram of V.S. Eye of Frog.
2. Describe evolutionary tree of reptiles.
3. Describe in detail the digestive system of Hemichordates.
4. Write a note on buccopharyngeal respiration of Frog.
5. Describe poison apparatus of Poisonous snakes.
6. Describe the internal structure of heart of Frog.
1. Explain the following in about 20 words each: 1%×10=1.5

Compulsory Question

Note: Attempt five questions in all, selecting two questions from each Unit. Question No. 1 is Compulsory. Support your answer with neat and labelled diagrams wherever necessary.

Maximum Marks: 40

Paper-II

2. Mammalian Physiology

1629

Ctm-M-22

Roll No. __________

Total Pages: 2
UNIT I

3
(b) Action potential

3%
(a) Role of renin-angiotensin-aldosterone system in osmoregulation

5. Write short notes on the following:

4. What is clotting? Describe the mechanism of blood clotting.

3. What is blood clotting? Describe the mechanism of blood clotting.

3%
(b) Differences between aerobic and anaerobic respiration

3%
(a) Explain transport of respiratory gases in the blood.

6%
(cycle)

2. What is cardiac cycle? Describe different phases of cardiac...
2. (a) Why should be the value of $R_1$ and $R_0$ with respect to

\[ F \]

UNIT-I

\[ \text{Diagram} \]

\[ 2 \times 4 = 8 \]

(b) Calculate the duty cycle for the given waveform.

(c) What is Bandpass section?

(d) What is Bandpass section?

(e) What is Bandpass section?

(f) What is Bandpass section?

1. (a) What are different feedback topologies? Make the

Compulsory Question

questions carry equal marks.

from each unit. Question No. I is compulsory. All

Note : Attempt five questions in all, selecting one question.

Maximum Marks: 40

Paper-I

OSCIILATORS AND MULTIVIBRATORS

1632

6SM/M-22

Roll No. .................................. Total Pages: 3
UNIT I

1. What is a TRN? Explain its transmission characteristics.

2. Amplifier, 

3. (a) Power amplifier is always preceded by a voltage
(b) Power amplifier is always preceded by a current and
(c) Power amplifier is always preceded by a signal.

4. Explain the working of push-pull amplifier with the help of a diagram.

5. Explain the working of push-pull amplifier with the help of a diagram.

6. Explain the working of push-pull amplifier with the help of a diagram.

7. Explain the working of push-pull amplifier with the help of a diagram.

8. Explain the working of push-pull amplifier with the help of a diagram.

UNIT II

1. What is a SC circuit? Explain its transmission characteristics.

2. What is the purpose of a push-pull circuit?

3. (a) Explain how to change the input resistance of a circuit.

4. What should be the value of R and R with respect to 

5. What is the value of R and R with respect to 

6. What is the value of R and R with respect to 

7. What is the value of R and R with respect to 

8. What is the value of R and R with respect to 

UNIT III

1. What is the effect of feedback on the output impedance (R0) of a circuit.

2. What is the effect of negative feedback on the output impedance (R0) of a circuit.
UNIT I

1. a) What are the characteristics and non-characteristic read out in a memory?
   2. (a) Why are the size of WAM and WBR for a (16K×64)
      (b) How does the performance of a converter depend upon the
          (c) What is the specification on which the performance of a
              (d) What is the binary input?

UNIT II

Comparative Question

Questions carry equal marks. From each Unit, Question No. 1 is compulsory. Attempt Five Questions in all selecting one question from each.

Note: Attempt Five Questions in all selecting one question from each.

Maximum Marks: 40

Time Allowed: 3 Hours

Paper II

ADVANCE DIGITAL ELECTRONICS

1633

GSW-M-22

Total Pages: 3

Roll No.
UNIT-III

1. Explain how RAM size 16x4 can be increased to 16x8.

2. Describe the relative merits and demerits of a dynamic RAM cell over static RAM.

3. Describe the read/write timing and control of a dynamic RAM cell.

4. What are Random-Access Memories (RAMs)?

5. Describe the difference between ROM and PROM.

6. What is a Memory Unit? Using Block diagram of a memory system, describe the important parameters related to memory unit.

UNIT-II

1. Name and explain the specification on which the performance of an ADC depends.

2. Explain the working of a switched-capacitor source DAC.

3. Where are the various performance characteristics and limitations of DAC used?

4. Explain the working of the switched current source DAC.

5. Explain the importance of selecting a D/A converter.
Explain the use of "new" and "delete" function. 

Explain the following and give examples for each:

1. UNIT-I
2. Explain the use of end and saw function.
   - (a) Methods
   - (b) Member function
   - (c) Overloaded
   - (d) Static member
   - (e) Static function
   - (f) Static data member

3. Define these polynomials:
   - (a) Linear polynomials
   - (b) Quadratic polynomials
   - (c) Cubic polynomials

4. Explain all the characteristics of object oriented programming.

5. Explain all the characteristics of object oriented programming.

6. Choose any one of the following:
   - (a) Function overloading
   - (b) Function overriding
   - (c) Function hiding

7. Explain the difference between static and dynamic binding.

8. Explain the difference between static and dynamic polymorphism.

9. Explain the difference between static and dynamic dispatching.

10. Explain the difference between static and dynamic binding.

11. Explain the difference between static and dynamic dispatching.

12. Explain the difference between static and dynamic binding.

13. Explain the difference between static and dynamic dispatching.

14. Explain the difference between static and dynamic binding.

15. Explain the difference between static and dynamic dispatching.

16. Explain the difference between static and dynamic binding.

17. Explain the difference between static and dynamic dispatching.

18. Explain the difference between static and dynamic binding.

19. Explain the difference between static and dynamic dispatching.

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21. Explain the difference between static and dynamic dispatching.

22. Explain the difference between static and dynamic binding.

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24. Explain the difference between static and dynamic binding.

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33. Explain the difference between static and dynamic dispatching.

34. Explain the difference between static and dynamic binding.

35. Explain the difference between static and dynamic dispatching.

36. Explain the difference between static and dynamic binding.

37. Explain the difference between static and dynamic dispatching.

38. Explain the difference between static and dynamic binding.

39. Explain the difference between static and dynamic dispatching.

40. Explain the difference between static and dynamic binding.
UNIT-I

marine and explain:
9. Define polymorphism. Write a program to calculate
the area of circle, square and rectangle in C++.

UNIT-II

4. Define polymorphism. Write a program to estimate the concept of memory
management. Explain various operators available in C++ for managing

UNIT-III

5. Define and give examples for:
4. Define constructors in detail available in C++.
1. How do you embed and embed with CSS is done.

UNIT I

JavaScript

1. Discuss the syntax and purpose of for each in loop in?
2. When is an associative array in JavaScript?
3. How can you generate a random number in JavaScript?

Server-side language

4. State whether JavaScript is a client-side language or?
5. What is a Flow object?
6. Why XML is used?
7. What is the difference between static and dynamic HTML?
8. What is CSS?

Compulsory Question

Questions carry equal marks.

Note: Attempt five questions in all, selecting one question from each Unit. Question No. 1 is compulsory. All remaining marks: 40

Paper 1

WEB DESIGNING USING ADVANCED TOOLS

1636

CGM/M-22

Total Pages: 3

Roll No.
UNIT III

8. (b) Explain in detail how you can work with (i) Text, (ii) Font, (iii) Color.

5. (b) Explain in detail how XML is suitable for the following examples:
- (i) How is XML suitable for compatible with other XML?
- (ii) What are the main features of XML?

UNIT II

8. (b) Troubleshoot issues.

4. Write short notes on the following:
- (a) Adding sounds
- (b) Troubleshoot issues
- (c) Write short notes on the following:
- (i) Explain suitable examples
- (ii) Describe suitable examples

8. Describe the various pre-defined objects in JavaScript with the help of suitable examples.

8. Explain the following in detail:
- (i) Java Script Pages
- (ii) Exam HANDling in Java

8. (i) Explain suitable examples.

8. What do you understand by style sheet? How can you create such sheets? Explain suitable examples.

6. (a) Discuss the major features of Java Script.

4. (a) Discuss various data types and variables using JavaScript.

2. Explain the purpose of the following functions in JavaScript:

7. (a) Describe various data types and variables using JavaScript.

3. Write short notes on the following:
- (a) Explain suitable examples
- (b) Describe suitable examples

3. Write short notes on the following:
- (a) Explain suitable examples
- (b) Describe suitable examples
UNIT-I

2. What do you mean by Event Driven Programming?
   Explain.

UNIT-II

1. Define visual basic IDE and also define its components with examples.

2. What is even handler? How is it related to subroutines?

COMPULSORY QUESTION

Questions carry equal marks.

From each Unit, Question No. 1 is compulsory. All
Note: Attempt five questions in all, selecting one question per unit.
Maximum Marks: 40

TIME ALLOWED: 3 Hours

PAPER-II

PROGRAMMING IN VISUAL BASIC

CEM/M-22

ROLL NO. ........................
TOTAL PAGES: 2
UNIT I

8. Explain basic use of optional arguments and usage of
    explain with an example with syntax and examples.

7. Help with examples.

6. Explain collection with its methods and properties with the
    give examples.

5. Explain various decision statements with their syntax and

UNIT III
(a) 

(b) 

(c) 

(d) 

6 × 2 = 12

Maximum Marks : 40

Time Allowed : 3 Hours

Hindi (Compulsory)

1650

GSM-M-22

Total Pages : 2
(1) Define angle.

(2) Protractor. (3) Index.

(3) Point. (4) Reflection.

(5) Triangle. (6) Interior (7) Other.

(8) Measuring.

(9) Perimeter. (10) Other.
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307
1. If a + b = 3 and a - b = 1, find the value of a and b.

2. If a + b = 2 and a - b = 1, find the value of a and b.

Maximum Marks: 40

Time Allowed: 3 Hours

SANSKRTI (COMPREHENSORY)
Formula for BMI = 

Fill in the blanks:

(i) Name two chemical preservatives
(ii) Freeze drying
(iii) Difference between helical and lanthanide

Write short answers of the following:

1. What is the difference between helical and lanthanide?

Compulsory Question:

Questions carry equal marks.

Note: Attempt five questions from all sections at least once.

Maximum Marks: 40

Time: Three Hours

Roll No. 04

Total Pages: 04

Department of Chemistry

1. Write short notes on the following:

(a) Linear Regression
(b) Balancing Chemical Equations
(c) Sources of Variations

Describe various causes of food spoilage. How can we prevent it?

6. Why is it important to preserve the food? Describe the

Unit II (Page 2)

1. a) B12 deficiency
2. Black pepper
3. Help of pickling. Food is preserved with the
4. Name the vegetable which is from microorganisms and the
5. Write short notes on the following:
6. B12 deficiency causes of your
7. common ailments found in
8. Discuss the causes, symptoms, dietary modification and

Unit I (Page 1)
Paper 212
APPAREL DESIGNING AND SELECTION
GSM/M-22
1810

Note: Attempt five questions in all, selecting two questions from each unit. No. 2 is compulsory. All questions carry equal marks.

Maximum Marks: 40

Time: Three Hours

I. Write about the following:

1. Compulsory Question (30 marks)

(2)
(3)
(4)
(5)
(6)
(7)
(8)

2 x 4 = 8
8. Give the comparison of home made, tailor made and ready made garments in detail.

4. What are the various factors that should be considered in the selection of clothes for children? Explain.

6. Write in detail about the various principles of design in relation to clothing.

7. Explain different colour schemes with colour wheel and relation to clothing.

8. Write about the clothing requirements of an adult.

9. How the proper use of things in dress can improve the personality of a person?

3. What is texture analysis? Write the uses in relation to

2. Explain how to select your clothing.
Complementary Question (All questions carry equal marks)

Note: Attempt five questions in all, selecting two questions from each unit. Q. No. 1 is compulsory. All questions carry equal marks.

Paper: 213
DEVELOPMENT
CHILDHOOD AND ADOLESCENT
GSM/M-22

Total Pages: 63
2. Describe the importance and types of play.

6. What do you understand by speech disorder? Discuss.

Unit II (Lesson II)

4. Discuss Piaget's theory of cognitive development.

8. Discuss any three emotions in detail.

9. What is the role of family and community in socialization?

8. Discuss common behavioral problems and their remedies.
I. Choose the correct option:

Compulsory Question (Warren's wet)

I. Are the following statements true or false? Carry equal marks.

Note: Attempt five questions in all, selecting one question from each Unit. No. I is compulsory. All questions carry equal marks.

Maximum Marks: 40

Time: Three Hours

Paper: II (214)

FAMILY RESOURCE MANAGEMENT

1812

GSM/M-22

Roll No. 06

Total Pages: 06
(c) What is the currency cost of higher work in capitalism?

- 1.4 to 2.0
- 0.5 to 1
- 2.3.5

(d) What is the currency cost of higher work in capitalism?

- 1.4 to 2.0
- 0.5 to 1
- 2.3.5

- No effect on body
- Muscles become active

(e) When rest period is too long?

- No effect of these
- Body is hot
- When our body is cool

(f) Best work curve is:

- SIMPLIFICATION
- SAVES TIME AND EFFORT
- NO EFFECT
- WAISTS TIME AND ENERGY

(g) Exclusion of expenditure according to income is:

- Evaluation
- Budget
- Others

(h) What is standardization mark on pressure cooker?

- ISI
- AFRO
- CE

(i) When is standardization mark on pressure cooker?

- ISI
- AFRO
- CE

(j) Estimation of expenditure according to income is:

- Exclusion
- Budget
- Evaluation

(k) What happens to currency and time in work?

- SIMPLIFICATION
- SAVES TIME AND EFFORT
- NO EFFECT
- WAISTS TIME AND ENERGY
6. Define the following:

Unit III (אומן) (ג')

5. Explain various types of efforts in detail.

8. Explain in detail various types of expenditures and factors affecting family expenditure.

7. Explain in detail various types of expenditures and factors affecting family expenditure:

(a) Savings
(b) Income
(c) Budget
(d) Money Management

(e) Work earners
(f) Residual
(g) Evaluation of time plan
(h) Peak load

2. Explain the need of time management in detail.

3. Write short notes on the following:

a) (א) Costly products
    (b) Good quality

b) (א) Standardized marks show
    (b)
(6:02/5) 1-1813

1. Explain each only 4-5 lines:

Compulsory Question (Applicant's View)

Note: Attempt five questions in all, selecting two questions from each unit. No. 1 is compulsory. All questions carry equal marks.

Time: Three Hours

Paper: 215

EXTENSION EDUCATION-II

COMMUNITY DEVELOPMENT AND

1813

GSM/M-22

Total Pages: 03

Reg No.
6. What do you mean by Extension Education? Explain its importance in detail.

7. Explain the principles of a good extension worker in detail.

8. Explain the classification of audio-visual aids and its importance.


6. Define Community Development. Explain their purpose.
2. (a) What is Archimedes principle and how is it useful?

(b) What are the disadvantages of an incandescent bulb?

(c) How reflections occur?

(d) What is the cause of atmospheric pressure?

(e) What is capillary action?

Compulsory Questions (Acharya Mata)

Note: Attempt five questions in all, selecting two questions from each unit. Out of these, No. 1 is compulsory.

Time: Three Hours

Maximum Marks: 40
6. Explain humidity and relative humidity. How these

Unit II (Study II)

2. When are centrifugal and centrifugal forces? Explain the

4. Explain the principle, construction and working of scissors

7. Define wavelength, frequency and amplitude phase and

8. Describe the operation of ac and dc generators.

(p) Describe the operation of a vacuum coffee maker

(b) Why do you understand by concentration of energy

(c) What is needed when materials a commercial use is made of?

(a) Why should be features of a good fuse? With

9. Explain the role of a fuse in electric appliances.

3. Explain hardness of solids. How can one measure

(b) Commercial broadcaster

(a) Physical quantities can be measured?

(d) Explain humidity and relative humidity. How these
UNIT 1

2x4=8

(a) Define the terms:

(b) Discuss the procedure to design a synchronous counter working.

(c) Draw 4-bit asynchronous counter and explain its working.

(i) Monotonicity.

(ii) Resolution

(d) Share the difference between PROM and EPROM.

(e) Write at least two conditions of shift registers.

(f) When are shift registers used in various applications?

(g) Differentiate between synchronous and asynchronous counters.

(h) Carry equal marks.

Note: Attempt Five Questions in all, selecting one question from each Unit. Q. No. 1 is compulsory. All Questions carry equal marks.

Maximum Marks: 40

B.E./B.TECH.
DIGITAL ELECTRONICS-III

B.E./B.TECH.
26100

2014-15
Unit II

3. (a) Design a 2-bit synchronous up-down counter using JK flip-flops.

4. Discuss any two applications of counters in digital circuits.

5. (a) Design a 1K x 8 bit memory chip using 1K x 4 chips.

6. (a) Define the following terms:

   - Phosphor and MOS RAM
   - Prom and EPROM
   - Briefly state the difference between:
     - Access Time
     - Data Line
     - Address Line
   - Memory Cell

Unit III

4. (a) Elaborate the circuit with suitable examples.

5. Explain the working of bi-directional shift register 74101 using D flip-flops.

6. Design a sequence generator for the sequence 5, 2, 7.

7. (a) Explain the working of dual slope ADC.

Unit IV

[Partial text from Unit IV]

1. (a) Define the term Resolution.

2. (a) Define the term Sampling Time.

3. (a) Define the term Quantization Error.

4. (a) Define the term ADC.

5. (a) Discuss the working of dual slope analog to digital converter. Enumerate its advantages over single slope converter.

6 to 22.

7. (a) Explain the working of R-2R ladder type DAC.

Unit I

2. (a) What are the applications of 555 Timer? (d)
2. (b) Give two Barkhausen conditions to get sustained oscillations. (c)
2. (c) Can a negative feedback amplifier work as oscillators? (b)
2. (d) Why input offset voltage exist in Op-Amps? (a)

Compulsory Question

carry each mark

Note: Attempt five questions in all, selecting one question from each unit. No. I is compulsory. All questions carry equal marks. Time: Three Hours

B.E. I-402

Oscillators & Multivibrators

B.E.T/M-22

26101

Roll No. 03

Total Pages: 03
8. Derive the expression of frequency of oscillations.

9. Draw and discuss the transmission of negative feedback loop.

5. The frequency and decay cycle of oscillations are 10 kHz and 1 Hz when capacitance of 0.05 μF and R = 50 kΩ.

8. The 555 timer as an astable multivibrator has an f = 1 kHz.

Unit IV

The working and calculating the frequency of oscillations.

7. Draw the circuit of RC phase shift oscillator and explain.

Unit III

The amplifier

4. To determine the input and output resistances of 10 kΩ. If a negative feedback of 0.02 is applied on the output resistance of 10 kΩ and a voltage gain of 100, how an amplifier has an input resistance of 1 kΩ and helps in reducing the distortion and noise.

5. Explain why negative feedback in an amplifier helps in reducing the distortion and noise.

Unit II

The op-amp.

4. Discuss the first order low pass active filter.

3. Draw and discuss the circuit of Schmidt trigger.

4. op-amp can be used to multiply two signals. Explain with the help of circuit diagram how op-amp works.
1. Explain the following network devices:

2 x 4 = 8

Unit I

2 (d) Cable ¿
When are the sources of attenuation in fiber optic
2 ¿ Cable for data transmission ¿
2 Why fiber optic cable is preferred over co-axial
2 ¿ Why is Handoff in cellular network ¿
2 ¿ Information ¿
2 Why is network and why network devices are

(Compulsory Question)

From each Unit, 0, No. 1 is compulsory.

Note: Attempt five questions in all, selecting one question

Maximum Marks: 40

BIST-403
NETWORKING-II
TELECOMUNICATION AND
BIST/M-22
26102

Total Pages: 03
UNIT IV

8. (a) What is attenuation in fiber optic cable and how can it be improved?

UNIT III

6. Draw the basic block diagram of fiber optic communication system and explain the applications of fiber optics.

5. (a) How is the optical fiber cable constructed? Explain.

4. (a) How is the call set-up in cellular network? Explain.

3. (a) Explain IS-95 architecture in cellular system.

2. (a) Explain GSM architecture for mobile networks.

1. What is frequency reuse in cellular network? What are its advantages and disadvantages?

UNIT II

9. (a) Discuss different types of structures of fiber optic cable.

8. Explain optical transmission used in fiber optic cable.

7. (a) What is critical angle in optical fiber? Discuss it.

6. How is the optical fiber cable constructed? Explain.

5. (a) Propagation of light in optical fiber.

4. (a) Draw the block diagram of fiber optic.
and the interrupt RST 6.5.

microprocessor using memory mapped I/O scheme

Design an interface of ADC 0801 with the 8085

Unit 1

2. (a) Discuss TRAP I/O and direction I/O of 8086.

(b) How many address lines and data lines are available

(c) When is the operating frequency of 8253?

(d) Discuss control word register format of 8254.

2. (a) Identify port address using CS, A0 and A1. CS is

Complementary Questions

from each unit. 0. No. I is complementary.

Note: Attempt five questions in all, selecting one question

Maximum Marks: 40

Time: Three Hours

B.S.T.-I

PROGRAMMING-II

MICROPROCESSOR ARCHITECTURE AND

B.S.T. M-22

26103

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

Total Pages: 03
Unit I

Program DO
1. (a) Explain the function of each pin of 8086 in IN 3.
2. (b) How is REPEAT-UNTIL different from WHILE?
3. (c) Discuss the following jump instructions:
   - JAE
   - JGE
   - JNE
   - JIF
   - JNE
4. (d) Discuss the following instructions:
   - INC
   - DIF
   - CMP
   - DA

Unit II

Example instruction in 8086
1. (a) Explain the following instruction in 8086:
   - MOV AX, [BX]  
   - MOV AX, 2000H  
   - MOV AX, [BX][SI]  
   - MOV AX, 70H[BX][SI]
2. (b) Calculate the effective physical address of 8086 for

Unit III

from counter 1
1. (a) Write a program to generate a 10 KHz square wave
2. (b) Discuss 8253 to design an 8-bit square wave generator
3. (c) Discuss the different segment registers with their
4. (d) Discuss the block diagram of 8253 in detail.
I. Write short notes on the following:

(a) User Authentication
(b) File Operations
(c) Virtual Address Space
(d) Dynamic Linking Libraries

II. Compulsory Question

Carry equal marks. From each unit, answer any one question.

Note: Attempt five questions in all, selecting one question from each unit.

Maximum Marks: 40

Time: Three Hours

BSIT-405
OPERATING SYSTEM-II

BSIT/M-22

Roll No. ........................................
Total Pages: 02
8 Discuss general model of protection called access matrix.

9 8. Compare symmetric and asymmetric encryption schemes.

Unit IV

8 For both sequential and random access files, allocate disk blocks (consecutive, linked, and indexed) and contrast the performance of these techniques.

7 4x2=8 6 Write short notes on the following:

Unit III

8 The system fails to eliminate this problem. Once it detects Threshing, what can

7. What is the cause of Threshing? How does the system

Unit II

8 Discuss the least recently used algorithm with example.
3. Explain compiler control directives using suitable examples.

2. What is macro substitution? Explain its types in detail.

Unit

2. Explain different types of operations in C.

(c) Variable?

(e) How would you declare and define a variable?

(b) What is meant by command line arguments?

(d) What is meant by preprocessor directive?

Equal marks.

Note: Attempt five questions in all. No. 1 is compulsory.

Maximum Marks: 40

Time: Three Hours

BSIT-406
COMPUTER PROGRAMMING WITH C-II
BSIT/M-22
26105

Roll No. 02

Total Pages: 02
Unit IV

8. Write a program to read and write the contents of a file.

9. Explain various storage classes in C in detail.

Unit IV

8. For both
used in C. Explain in detail by writing suitable program

7. What is mean by structure and union? How these are

8. suitable example.
operations that can be performed on pointer C use

6. What do you mean by a pointer? Explain various

Unit III

8. write recursive function.

5. What is Recursion? Write a program to print the Fibonacci

3. (c) local and global variables.

3. (b) formal and formal parameters

2. (a) & and operator

4. Distinguish between the following:

Unit II
1. (a) Show that the functions 
\[
\frac{x - \varepsilon}{\varepsilon}, \quad \frac{x - \varepsilon}{\varepsilon} = \eta
\]
under the mapping

VIII

2. (b) Show that the identity for Fourier series

2

x = \eta

find the image of \[ z = \frac{x - \varepsilon}{\varepsilon} \]
under the mapping

function are harmonic functions.

2

prove that real and imaginary parts of an analytic

function are the integrals of linear functions of

\[
\phi(x) = \left( x^2 - 8 \right) e^x
\]

2

ii. (a) Express the following integral as Bessel function:

Complex Question

every equal marks:

from each line 0.8% is correct answer. all questions

not: Answer the questions in all deciding one question,

at maximum marks: 14

BM-361
REAL AND COMPLEX ANALYSIS

GEOM-22
Total Pages: 01

1. (a) Show that the functions \( x - \varepsilon \) \( \varepsilon \) and under the mapping

VIII

2. (b) Show that the identity for Fourier series

\[
\frac{x - \varepsilon}{\varepsilon} = \eta
\]

find the image of \[ z = \frac{x - \varepsilon}{\varepsilon} \]
under the mapping

function are harmonic functions.

2

prove that real and imaginary parts of an analytic

function are the integrals of linear functions of

\[
\phi(x) = \left( x^2 - 8 \right) e^x
\]

2

ii. (a) Express the following integral as Bessel function:

Complex Question

every equal marks:

from each line 0.8% is correct answer. all questions

not: Answer the questions in all deciding one question,

at maximum marks: 14

BM-361
REAL AND COMPLEX ANALYSIS

GEOM-22
Total Pages: 01
Show that the function $z = (z)f$ is an analytic function of $z$ and $m+n = (z)f$.

Hence deduce that

$$z \geq x \geq 0 : \left\{ \begin{array}{l} \frac{v}{x^2} - 1 \\ \frac{v}{x^2} + 1 \end{array} \right\} = (x)f$$

Obtain the Fourier series expansion of the function

$$u > x > m : |x| = (x)f$$

and the Fourier series for the function

$$u < x < m$$

By the surface $x = (x)f$.

Obtain the integral equation for the volume bounded

$$0 < m : |x| = (x)^f$$

Show that the relation between them

$$\frac{v}{x^2} - \frac{v}{x^2} = \frac{v}{x^2}$$

and that the relation between one another also

$$\frac{x-x}{z} = \frac{x-x}{z}$$
(a) Union of two subspaces need not be a subspace.
(b) Space V(p) is also a subspace of V(m).
(c) Intersection of two subspaces W₁ and W₂ of vector space.

2. (c) Define self-adjoint operation
   (b) Define null space of a linear transformation.
   (a) Define vector space isomorphism.

(Compulsory Question)

From each unit (a) No. I is compulsory.
Note: Attempt five questions in all selecting one question.

Time: Three Hours

Linear Algebra
BM-362
MATHEMATICS
1743
GS0/M-22

Total Pages: 04
Show that the set of vectors $(1, -1, 1)$ and $(1, 1, 0)$ is linearly independent.

(a) If $v$ is a vector in $V$, then show that

$$T(v) = \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix} \rightarrow \begin{pmatrix} x_1 \\ x_2 - 1 \\ x_3 + 1 \end{pmatrix}.$$

(b) Find the characteristic polynomial of the transformation $T$.

(c) Find the eigenvalues and eigenvectors of the transformation $T$.

(d) Find a basis for the nullspace of $T$.

(e) Find a basis for the range of $T$.

(f) Show that the transformation $T$ is invertible.

(g) Find the inverse transformation $T^{-1}$.

(h) Find the determinant of the matrix $A$.

(i) Find the trace of the matrix $A$.

(j) Find the eigenvalues of the matrix $A$.

(k) Find the characteristic polynomial of the matrix $A$.

(l) Find a basis for the nullspace of $A$.

(m) Find a basis for the range of $A$.

(n) Show that the set of vectors $(1, -1, 1)$ and $(1, 1, 0)$ is linearly independent.
Section I

Write down Kepler's law of planetary motion.

Define space and spatial dimensions.

Figuratively. Find out the horizontal range and the greatest horizontal range of a projectile in a direction making an angle $60^\circ$ with the vertical.

A particle is projected with a velocity of $24.5$ m/s. What is the period?

Find the acceleration of a particle in terms of its velocity.

A particle has velocity $u = \sin \theta$ under.

The distance between the two points is the maximum distance.

Section II

Note: Attempt the questions in all sections of the question paper.

Maximum Marks: 70

Time: Three hours

Dynamics

BM-36

MATHEMATICS

GS/O/M-22

Total Pages: 20
they will meet in line. Prove this.

Two particles are let drop from the curb of a cycloid above the center. Prove that if will leave the circle at a distance

higher point of a smooth vertical circle of radius.

If a particle starts from rest at a depth below the

Section III

It is suggested so as to be of length \( l \) and modulus of elasticity \( k \). When

Find the potential energy of an elastic string of

forces acting on the particle. \( K \) is equal to the work done by the impressed

In any displacement of a particle, the change in

be

at its ends. Show that the least possible acceleration

a tension equal to one quarter of sum of two weights
passing over a pulley. If the string can only support

Two heavy particles are attached together by a string

\[
\frac{Z}{l} + \frac{Z}{d} = \frac{Z}{l + d}
\]

in which the ascen can be made is

the rope can satisfy bear is \( \mu \). Show that the line

through a height from the greatest tension which

A load \( W \) to be raised by a rope from rest to rest

Section II

and with what velocity the wind blowing

appears to come from north-east in which direction

from the north. He denotes this speed and wind

a person going eastwards with a velocity of

length \( u \) and let \( \theta \). Discuss the motion.

in the string above. The mass is further pulled a

and modulus of elasticity \( k \). The extension produced

fixed point by an elastic string of natural length

A particle of mass \( m \) hangs in equilibrium from a

\[
\cos \frac{\theta}{2} = \frac{\sqrt{3}}{3}
\]

the period of complete oscillation is \( \frac{\theta}{2} \). Show that

measured in same direction are \( \sqrt{3} \). Show that

move point with \( S/H \) from its mean position

at the end of these successive seconds, the distances
1. For the molecules HCl, HBr, HI, (c) name the molecular structure which is observed.

2.are I and Z two atomic electrons whose orbital quantum number is not change.

3. Write down the possible values of total angular momentum quantum number j for L=0 coupling of both IR and Raman spectra.

4. Give example of two molecules which may show splitting of spectral lines in the Stark effect depends.

5. Supply brief answers:

Comprehensive Question

From each line Q. No. 1 is comprehensive:

Note: Answer the question in all, selecting one question.

Time: Three Hours

Maximum Marks: +60

Atomic and Molecular Spectroscopy

Paper: XII

Physics

GSO/M-22

1750

ROLL NO. 320

TOTAL PAGES: 04
How can the spin orientation of \( H_2 \) molecule be observed? If the bond length of \( H_2 \) molecule is 0.07417 nm, what would be the spacing of lines in the spectrum of this molecule? Explain the structure of hydrogen atom for \( H^+ \) line.

2. Explain the structure of hydrogen atom for \( H^- \) line.

3. Calculate the wavelength of the second line of the Balmer series of \( H^+ \) line.

4. Name the series of spectral lines of lithium which have been accounted for the first time the Balmer series.

5. State and prove Bohr's correspondence principle.
provide more stable metal carbonyl Sigma bonds.

2. (a) Discuss the factors that would be expected to affect the length of the bond between two atoms.

Section A

1. (i) Which disease is caused by excess of copper?
2. (ii) Name any two essential trace elements.
3. (iii) Write the formula of conjugate base of HSO₄⁻.
4. (iv) Name any two free living bacteria.
5. (v) Give two examples of organic molecules.
6. (vi) Give the shape of O₂ molecule. Which bond is [ ]
7. (vii) When is Ziegler-Natta catalysts used?
8. (viii) Give one example of each of free electron donor and
compulsory.

Note: Attempt five questions in all Section A.

Section B

Attempt five questions from Section A and Section B. Question No. 1 is compulsory.

Maximum Marks: 20

Time: Three Hours
Section B

3. What is Crosslinking? Explain Importance

4. What is Beilstein’s Theory of Crosslinking in Macro Molecules?

5. What is the chemical formula of Te? Explain Central Role of Te in hemoglobin.

6. What is the role of Hemoglobin and Myoglobin in hemoglobinization?

7. Discuss the role of Hemoglobin and Myoglobin in the oxygen transport system.

8. How does the presence of Heme in hemoglobin affect its function?

9. What is the biological function of Zn2+ in hemoglobinization?

10. What is the biological role of Na and K ions in hemoglobinization?

11. What is the importance of Hemoglobin in Hemoglobin-in-Hemoglobinization?

12. What is the importance of Hemoglobin in Hemoglobin-in-Hemoglobinization?

13. What is the importance of Hemoglobin in Hemoglobin-in-Hemoglobinization?

14. What is the importance of Hemoglobin in Hemoglobin-in-Hemoglobinization?

15. What is the importance of Hemoglobin in Hemoglobin-in-Hemoglobinization?

16. What is the importance of Hemoglobin in Hemoglobin-in-Hemoglobinization?

17. What is the importance of Hemoglobin in Hemoglobin-in-Hemoglobinization?

18. What is the importance of Hemoglobin in Hemoglobin-in-Hemoglobinization?

19. What is the importance of Hemoglobin in Hemoglobin-in-Hemoglobinization?

20. What is the importance of Hemoglobin in Hemoglobin-in-Hemoglobinization?
1. Describe and explain Henry's law of solution

(a) give an example of each of these

(b) Define ideal and non-ideal solutions. Give one example of each.

(c) Why is the Henry's law of a substance the difference between the Henry's law of the common solvent and the Henry's law of the substance itself?

2. (a) Give two examples of photosensitive reactions.

3. (a) Give two examples of photosensitive reactions.

(c) What is the meaning of thermodynamic property?

(d) How do you measure it?

(e) What is the meaning of thermodynamic property?

(f) How do you measure it?

4. (a) Define ideal and non-ideal solutions. Give one example of each.

(b) Why is the Henry's law of a substance the difference between the Henry's law of the common solvent and the Henry's law of the substance itself?

(c) How do you measure it?

(d) What is the meaning of thermodynamic property?

(e) How do you measure it?

(f) What is the meaning of thermodynamic property?

(g) How do you measure it?
Discuss Born-Car-Penrod Approximation

1. Give reasons for the following:
2. [Incomplete sentence]
3. Calculate the osmotic pressure of 0.1 M solution.
4. [Incomplete sentence]
5. The important features of Maxwell-Boltzmann
6. [Incomplete sentence]
7. Define the terms:
   a. Phase
   b. Compartments
   c. Degrees of Freedom
8. [Incomplete sentence]
9. What do you mean by quantum yield of a
10. [Incomplete sentence]
11. What is the important feature of Maxwell-Boltzmann
12. [Incomplete sentence]
13. Draw a labeled phase diagram for water system.
14. Thermodynamically, how can you derive it.
Organic Chemistry
Paper III (XX-CH-306)

P.T.O.

1. Define the terms polymerisation and polymer.
   (a) Polymerisation
   (b) Polymer
   (c) Give one example each of
   (i) Homopolymers
   (ii) Copolymers
   (d) Write the empirical formula of
   (i) Phenol
   (ii) Formaldehyde resin
   (e) Draw the structure of
   (i) Vinyl chloride
   (ii) Styrene
2. Complete the following:
   (a) 
   (b) 
   (c) 

3. Arrange in increasing order of basicity:
   (a) 
   (b) 
   (c) 

4. Predict the physical properties of
   (a) 
   (b) 

5. Which ion is a weaker acid than hydroxide ion?

6. Which ion is more acidic and basic among acid and base?

7. Write the equations for the preparation of
   (a) 
   (b) 

8. Synthesis of

9. Prepare a dipophile epoxy by classical procedure

Note: Answer the questions in all sections
Time: Three Hours
Maximum Marks: 32
Section A

3. (a) Common name of the mechanism for the reaction.

(b) What happens when: [Diagram of mechanism]

4. (a) Write a note on Bredt's synthesis of quinoline.

(b) Prepare and write the uses of [(i) 2-Methylpyridine acid].

(c) Explain the structure of (i) 2-methylpyridine acid.

(d) Prepare from malonic ester and 1, 3-dicarbonyl compounds.

(e) Give mechanism of Claisen condensation.

(f) Write a note on the synthesis of quinoline.

Section B

6. (a) Synthesize cyclohexane carboxylic acid from malonic acid.

(b) Prepare (i) malonic acid.

(c) Explain the reaction of 1, 3-dicarbonyl compounds.

(d) Importance of 1, 3-dicarbonyl compounds.

(e) Common name for the hydrolys in the synthesis.
In various parts of a plant
5. Discuss how storage and mobilization energy occurs

(a) Photosynthesis
(b) Respiration
(c) Fermentation
(d) Photosynthesis of plasmoids
(e) Phases of photosynthesis
(f) Photosynthesis of plasmoids

4. Write short notes on the following:

(a) Photosynthesis
(b) Respiration
(c) Fermentation
(d) Photosynthesis of plasmoids
(e) Phases of photosynthesis
(f) Photosynthesis of plasmoids

3. Write short notes on the following:

(a) Photosynthesis
(b) Respiration
(c) Fermentation
(d) Photosynthesis of plasmoids
(e) Phases of photosynthesis
(f) Photosynthesis of plasmoids

2. Write short notes on the following:

(a) Photosynthesis
(b) Respiration
(c) Fermentation
(d) Photosynthesis of plasmoids
(e) Phases of photosynthesis
(f) Photosynthesis of plasmoids

1. Write short notes on the following:

(a) Photosynthesis
(b) Respiration
(c) Fermentation
(d) Photosynthesis of plasmoids
(e) Phases of photosynthesis
(f) Photosynthesis of plasmoids
Roll No. .................................

GSQ/M-22
BOTANY
Paper : II
Economic Botany

Time : Three Hours]
[Maximum Marks : 40

Note : Attempt Five questions in all, selecting one question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

(Compulsory Question)

1. Define the following : 1×8=8
   (a) Bulb
   (b) Tuber
   (c) Bast fiber
   (d) Spices and condiments
   (e) Energy plantation
   (f) Barl:
   (g) Bio-fuels
   (h) Coir

Unit 1

2. Briefly describe the origin, distribution, cultivation and uses of Maize 8
5. Give a concise account of different family planning processes.

There are:

(a) Rubbets
(b) Cloves

Calculation and uses of the following:

2. Give the botanical names, family, plant part used and uses of tea.

6. Write are Differences between rhoades and elephant e.

III

Write three. Describe the calculation and uses of these:

5. Discuss the characteristic features of surface herbs and

(a) Yields
(b) Ground

6. Give a concise account of cultivars and uses of the

(a) Pea
(b) Cucumber

9. Write short notes on any one of the following:
Section A

(f) Potentials

(i) Common name of Scanning Electron

(ii) Reasoning of Surface area/Top.

(iii) Symmetrical position of Gun muzzle bore

(iv) Frontal

(v) Trench gun

(vi) Firing gears

(vii) Capture features

(viii) FVI

2. Explain the following in about 20 words each: 1.5 x 10 = 15

From Section A and Section B. Q. No. 1 is compulsory:

Note: Attempt five questions in all. Selecting two questions.

Time: Three Hours

Maximum Marks: 40

Agricultural and Post Management

Paper: 1

Zoology

GS2/M-22

1758

Roll No. 03

Total Pages: 03
8. Give the scientific position of the following species:
   a. pumpkin

9. Explain the scientific position of the pumpkin.

3.2.5
   a. Describe the components and advantages of indigenous
     hybridization.

3.2.5
   a. When is indigenous hybridization used?

Section B

3.2.5
   a. What are the advantages of induced hybridization?

3.2.5
   a. Describe induced hybridization in detail.

3.2.5
   a. What is a hybrid race and how is it different from an
     ordinary race?

3.2.5
   a. What are hybrid races?
Section I

Insecticides classification based on mode of entry

1. Explain the following in about 20 words each : 1.5 x 10 = 15

maximum marks : 40

Time : Three hours

Aquaculture and Pest Management-II

Paper : II

ZOOLOGY

1759

GSIA/M-22

Total Pages : 02
Section II

3. Write notes on the following:
   (b) Preaching habits of fishes.
   (a) Care culture.

Section III

3.25

(a) Punning water culture.

(b) Polyp culture.

Section IV

3.25

(a) Grain and flour make.

(b) Pulse beetle.

Write notes on the following:

5. Discuss the nature of damage caused and habits of the
   He-episode and control of Wheat weevil.

6. Explain the systematic position, habits, nature of damage.
2. The data is transferred by a DMA controller.
   (a) What is DMA? Using block diagram explain how.
   (b) Name the applications of the 8253.
   (c) Control word register is loaded with 98H after its
   for ports A, B and C or an 8255. After its
   (d) What is the mode and input-output configuration
   (e) RST 7.5.
   (f) How will you enable RST 5.5 and disable RST 6.5.

I. (a) Each unit. All questions carry equal marks.

   Remind your questions by selecting one question from
   questions in all. No. I is compulsory. Attempt
   Note: There are nine questions in the paper. Attempt five

Maximum Marks: 40

Time: Three Hours

Programming-II
Microprocessor Architecture and
Paper: I (Theory)

ELECTRONICS

1762

GSOM-22

Roll No: 03

Total Pages: 03
3. Draw the block diagram of Programmable Interval Timer

Unit III

4. Explain its working in 8253 mode only.

Unit II

5. Discuss the bit pattern for RIM instruction

2. Draw and discuss the Interrupt Control Circuit for

Unit I

8. Explain the function of each block.

Unit IV

8. Discuss the hardware and software interrupts in brief.

8. Draw the block diagram of 8255 and explain.

8. Explain the control word format of 8255.

8. Mention various modes of operations of 8255 and

8. Discuss Microprocessor based temperature controller.

8. Explain Microprocessor based washing machine controller.

8. Explain the program to control the temperature of an oil

8. Bank

8. What is the difference between Hardware-Integrated and Software-Integrated

8. (q)
2. (a) Describe several different types of operator that are included within the C language.

2. (b) In what ways does an array differ from an ordinary variable?

2. (c) What is the purpose of a return statement?

2. (d) Provide a suitable example.

2. (e) Differentiate between getter and pulisher with suitable examples.

2. (f) What is an escape sequence? What is its purpose?

(COMPULSORY QUESTION)

Note: Attempt Five questions in all, selecting one question from each Unit. 0, 1, 2 is compulsory. All questions carry equal marks.

Maximum Marks: 40

Time: Three Hours

Introduction to C and its Programming

PAPER II

ELECTRONICS

GS/M-22

ROLL No. ....................................................

TOTAL PAGES: 05
Explain the meaning of each of the following statements.

The relation between the two.

When are formal and actual arguments, what is

Which is the purpose of for statement? How does

What is the purpose of break statement? Read

When is the purpose of else statement?

Describe the use of the conditional operator i.e form:

Name and describe the four basic data types in C:

Describe the data type of each of the following:

char c:

double dx:

float x:

short s:

long ix:

int i:

double f(double a, int b):

printf("%d", x):

printf(,,x":"

if (!)

if (!)

while (!)

if (!)

main()

Driver:<stdio.h>

Description of C contains the following:

A program in C contains the following:
comparisons useful. Under what conditions are such comparisons made? Under what conditions can two pointer variables be
by reference?

the difference between passing by value and passing
is when passing an argument to a function. What is
that point? (a) Here, p, q, p2, q2 = RCB.
when p2 = q2
for (i = 0; i < 10; i++)

return (x);

num = (n * c + a);

or include <stdio.h>

problem: Describe the output generated by the following
and disadvantages to passing arguments in this
manner?

8. (a) What is the relationship between an array name and
its length?
Necessary and sufficient conditions

(a) Primary Key

(b) Check Constraint

(c) Foreign Key

(d) Check Constraint

(e) Explain the following constraints with reference to SQL:

Example:

database. Also explain 3NF by using an appropriate

Figure are the anomalies that lead to the bad design of the
Handwritten question text:

1. Explain the following with Computer Network:
   - What is a Reference Model? Why is it needed? Explain its applications using suitable examples.
   - What do you mean by Computer Networks? Explain its four equal marks.

Note: Attempt five questions in all, selecting one question from each line. No. 1 is compulsory.

Time: Three Hours

Paper II

Computer Networks

COMPUTER SCIENCE

G50/M-22

Total Marks: 60
UNIT I

D. What do you mean by Bluetooth Technology? Explain in detail.

UNIT II

6. Differentiate between the following:
   - Simple ALOHA and Slotted ALOHA
   - Switched Ethernet and Fast Ethernet

UNIT III

3. (a) What do you mean by guided data transmission?
I. Write short notes on the following:

Compulsory Question (athsali khet)

(a) Atherosclerosis
(b) Acute and Chronic Renal Failure
(c) Renal Calculi
(d) Chemotherapy

2x4 = 8

II. Attempt five questions in all, selecting one question from each unit. No. 1 is compulsory. All questions carry equal marks.

Note: Time: Three Hours

Maximum Marks: 40

Course 3II

Germanics-II

1815

GS/M-22

Total Pages: 03
1. Describe the classification and etiology of hypertension.

2. Explain the symptoms, complications, causes and nutritional management of Coronary Heart Disease (CHD).

3. Explain the symptoms, complications, causes and dietary modifications in patients suffering from diabetes mellitus (IDDM).

4. Discuss the classification and etiology of hypertension.

5. Describe dietary guidelines to be followed in the diet of a patient with Chronic Renal Failure.

6. Elaborate the complications and recommended dietary modifications in patients suffering from cancer.

7. Discuss the diet for a patient suffering from osteoarthritis.

8. What are kidney stones? Discuss their type, foods allowed and restricted during kidney stones.
Write short notes on the following:

1. Compulsory Question (All questions carry equal marks)

Total Marks: 40

Course No. 312
AND CONSUMERISM
TRADITIONAL TEXTILES AND EMBROIDERIES
GSO/M-22

1816

Total Pages: 03
4. Write in detail about the materials and techniques used in handloom and Chilkur embroidery.

5. Give the origin, patterns, colors, articles, and other details about Kanchi embroidery.

6. Which are the factors that affect the clothing selection and consumption?

Unit II (Material)

2. Write a detailed note on processes of Denim with its various types.

3. Give an explanatory details of techniques, history, patterns, and qualities of Denim.

4. Write in detail about the materials and techniques used in handloom and Chilkur embroidery.

5. Give the origin, patterns, colors, articles, and other details about Kanchi embroidery.

6. Which are the factors that affect the clothing selection and consumption?

7. In present context explain the factors that affect the
I. Write short notes on the following:

(a) Effect of death of a member on family

(b) Counselling Parents

(c) Parenthood

(d) Developmental Tasks

2 x 4 = 8

Compulsory Question (Answer any one)

Note: Attempt five questions in all. Selecting two questions from each unit is compulsory. All questions carry equal marks.
Unit II (Cont.)

4. Discuss the vocational development and adjustment to
   vocational during youth adulthood.

5. Describe the retirement and grandparenthood during the
   life cycle.

6. Discuss the need and principles of guidance.

7. When is individual and group guidance? Explain the
   objectives of individual and group guidance.

8. What kind of skills and characteristics are essential for
   counselors to possess?

9. Discuss the methods and techniques of counseling.
Define the following terms:

(a) acromatic colour scheme
(b) Texture
(c) Punishments
(d) Emphasis

Compulsory Question (All marks)

Answer all questions from each unit. Q. No. 1 is compulsory. All questions carry equal marks.

Note: Attempt five questions in all. Selecting two questions

Time: Three hours

Maximum Marks: 40

Paper: 314
6 What is the importance of colour in interior decoration?

5 Write in detail about the various colour schemes and their use.

4 Explain the importance of schemes of art and their arrangement.

3 Write briefly the importance of schemes of art and their arrangement.

2 Write in detail about different types of flower arrangements.

1 Write in detail about floral arrangements.

6 Write in detail about arrangement for work and rest.

5 What are the principles to be followed while setting up the room?

4 Write in detail about arrangement and care of different flowers.

3 Write briefly the importance of flowers in the room.

2 Explain the importance of flowers in the room.

1 Write briefly the importance of flowers in the room.
UNIT I

2. What is Cryptography? Explain its various types.
3. Explain various types of viruses along with its prevonution.

UNIT II

1. Write short notes on the following:
   (a) Internet
   (b) EDI
   (c) Video Conferencing
   (d) Cookies

(Compulsory Question)

[Note: Attempt five questions in all, selecting one question from each unit. Out of 5 marks, each question carries equal marks.]

Time: Three Hours

Maximum Marks: 40

BSIT-604
APPLICATIONS II
INTERNET CONCEPTS AND

BSIT/M-22

26109

ROLL No. ..........................................
Total Pages: 02
UNIT IV

9. Explain various Electronic Meeting Systems in detail. 8
8. Explain hardware and software requirements of Internet. 8

UNIT III

6. Differentiate the following: 4×2=8

5. What is Multimedia Authoring Tools? 8

   (a) e-commerce and m-commerce
   (b) Pure and Partial e-commerce
2. Distinguish between scalar RISC and super scalar RISC.

Unit I

Parallelism

Elaborate the role of compiler in exploiting parallelism.

What is an input-output interface?

(b) What is an auxiliary memory? Also write its types?

1. Draw a crossbar switch network and describe its working.

Answer your more questions, selecting one question from each Unit. All questions carry equal marks.

Note: Answer five questions in all. No. 1 is compulsory.

B.S.T. - 601

COMPUTER SYSTEM ARCHITECTURE

B.S.T/M-22

26106

Roll No.

Total Pages: 8
1. Differentiate how isolated I/O is different from memory.
2. Request memory transfer.
3. Why does DMA have priority over the CPU when both.

Unit I

5. Vector processing.
6. Explain the following.

8. Connection for physical interconnection in a computer.

Unit II

4. Multilevel memory.
5. Virtual Memory.
6. Write short notes on the following:

8. Cache memory with two blocks per set.

Unit III

4. Intra-level Memory.
P1O.

1. Explain concept of Operator Overloading. Write a program showing use of Friend Function.

2. (a) Define Friend Function. Write its major properties

Unit I

1. (a) What is Protected class?

2. What is Stream operator?

3. Differentiate Normal member function and Friend.

4. While forming input and output statements in files, Name two stream classes used in File-operations.

5. Explain Friend function and Static.

Note: Attempt three questions in all. Selecting one question carry equal marks.

Time: Three Hours

Maximum Marks: 40

B5T7-602

PROGRAMMING IN C++ II

B5T/M-22

26107

ROLL NO. 02

Total Pages: 02
Section I

9. Explain exception handling. Write a program to show:

File-1: All above and also total marks.

File-2: Name, Rollno, DOB, Address, Marks in Sub-1,
and File-2" for input with the following data:

8. Make a program using files to use "File-1" for output.

Unit IV

Inheritance and Specialization.

7. Discuss properties of template class and also derive

function and virtual base class.

6. Discuss virtual function. Write a program showing virtual

function.

Unit III

5. (a) Explain concept of inheritance operator functions.

(b) Explain scope of class using the concept of Public.

4. Explain concept of inheritance, types of inheritance and

private and protected base class.

3. (a) Explain concept of inheritance, types of inheritance and

private and protected base class.

2. Explain concept of inheritance, types of inheritance and

private and protected base class.

1. Explain concept of inheritance, types of inheritance and

private and protected base class.
1. Write short notes on the following:

- Use of XML
- CSS Rules
- GET Method in form
- Frame Element

2. Explain the procedure to create links between frames.

Until

3. TARGET attribute.

Explain with examples the method to create the following:

4. FORM Controls.

(a) Text Input Controls

(b) Radio Button Controls

(c) Text Area Controls

(d) Check Box Controls

(e) Drop Down Controls

(f) File Input Controls

4. Explain with examples the use of

TARGET attribute.

Note: Attempt five questions in all, selecting one question from each unit. No. 1 is compulsory. All questions carry equal marks.

Maximum Marks: 40

Time: Three Hours

BSTMT-603

DESIGN TOOLS-II

WEB-SITE DESIGN IMPLEMENTING BASIC

BST/MT-22

26108

Roli No. 03

Total Pages: 03

(5-04/11/2010)
7. Explain the CSS properties for <FONT> and <TEXT>.
2
(ii) CSS Comments.
2
(i) Import Style Sheet

6. (a) When is External Style Sheet ? How is it different

From Internal Style Sheet ?

(b) White Sheet notes on the following:

Union I

(i) Status Bar
(ii) Scroll Bar
(iii) Menu Bar
(iv) Title Bar

5. White Sheet notes on the following in Frontpage: 2x4=8

4

Explain the various attributes of <EMBED> element.
4

Various attributes associated with it.
4

Discuss the <MARQUEE> element along with the

Union II

(d) Hidden Controls.
(c) Submit and Reset Button
(b) Checkbox
UNIT II

8

3. Explain various types of viruses along with its prevention.

2. What is Cryptography? Explain its various types.

UNIT I

(d) Internet
(e) EDI
(b) Video Conferencing
(a) Cookies

1. Write short notes on the following:

(Compulsory Question)

Maximum Marks: 40

Time: Three Hours

BSIT-604
APPLICATIONS II
INTERNET CONCEPTS AND
BSIT/M-22
26109

Roll No. ..........................................
Page No. 02
8. Explain hardware and software requirements of Internet.

UNIT IV
and types.
   (b) E-commerce and m-commerce.
   (a) Pure and Partial E-commerce.

6. Differentiate the following:

UNIT III
4x2=8
5. What is Multimedia Authoring Tools?
2. Explain different hardware units used in embedded system.

Unit 1

2. (a) What are the specifications of 8051 microcontroller?
   ADD A, R1
   MOV R1, 0 + #
   MOV A, #96

Instructions?
(c) What will be the result after executing these?
(c) Crystal?
(b) Why 8051 microcontroller uses 11.052 MHz?

I. (a) Why is microcontroller used in embedded systems?

(Compulsory question)

From each unit 0, 1 is compulsory.
Note: Attempt five questions in all, selecting one question from each unit.

Time: Three Hours

Maximum Marks: 40

Paper: II BTE-605

MICROCONTROLLER

EMBEDDED SYSTEMS AND 8051

BTE/M-22

26110

Roll No.

Total Pages: 03
Unit II
(a) Discuss different types of Single purpose processor architecture is proposed in 8051 microcontroller and which one is preferred.
(b) Discuss different steps involved in the designing of a microcontroller.
(c) Why designing of a design is required? Discuss the steps involved in the designing of a microcontroller.
(d) What is the role of look-up tables in microcontroller design.

Unit III
(a) What is the use of CALL instruction? Explain.
(b) Why is the use of CALL instruction preferred in 8051 microcontroller to access data with examples.
(c) Explain different types of addressing modes used in 8051 microcontroller with their examples.
(d) How many interrupts are provided in 8051? Explain.
(e) PCON registers in 8051.
(f) What is serial communication? Discuss SCON and unit IV
(a) Explain how external memory is access by 8051.
(b) Discuss internal RAM structure of 8051.
(c) and TOCON special function registers.
(d) What is the role of Limiters in 8051? Explain TMOD register.
(e) Explain Program Status Word (PSW) of 8051.