

KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
 B.Sc. Engineering 1st Year 1st Term Examination, 2021
 Department of Computer Science and Engineering
 MATH 1107

Differential and Integral Calculus

TIME: 3 hours

FULL MARKS: 210

- N.B. i) Answer **ANY THREE** questions from each section in separate scripts.
 ii) Figures in the right margin indicate full marks.

SECTION A

(Answer **ANY THREE** questions from this section in Script A)

1. a) Define limit and differentiability of a function. A function $f(x)$ is defined as follows: (15)

$$f(x) = \begin{cases} \frac{x^2 - 1}{x - 1}, & \text{when } x \neq 1 \\ 2, & \text{when } x = 1 \end{cases}$$

Discuss the continuity and differentiability at $x=1$.

- b) Define subtangent and subnormal. For the curve $x^m y^m = a^{m+n}$, show that the subtangent at any point varies as the abscissa of the point. (10)

- c) Evaluate the following: (10)

$$\lim_{x \rightarrow 0} \left\{ \frac{\ln(x^2)}{\ln(\cot^2 x)} \right\}$$

2. a) If $y = (x^2 - 1)^n$, then find a relation among y_{n+2} , y_{n+1} , y_n . (12)

- b) Define maximum and minimum of a function. Find the maximum and minimum of the function $12(\log x + 1) + x^2 - 10x + 3$. (14)

- c) If $f(x) = \left(\frac{a+x}{b+x}\right)^{a+b+2x}$, then show that $f'(0) = \left(2 \log \frac{a}{b} - \frac{a^2-b^2}{ab}\right) \left(\frac{a}{b}\right)^{a+b}$. (09)

3. a) State Euler's theorem. If $u = F(x^2 + y^2 + z^2)f(xy + yz + zx)$, then show that $(y-z)\frac{\partial u}{\partial x} + (z-x)\frac{\partial u}{\partial y} + (x-y)\frac{\partial u}{\partial z} = 0$. (12)

- b) Define asymptotes. Find the asymptotes of the following curve: (13)
 $x^3 + x^2 y - xy^2 - y^3 + 2xy + 2y^2 - 3x + y = 0$.

- c) State Taylor's theorem. Expand $f(x) = 2x^3 + 5x^2 - 2x + 1$ in Taylor series in power of $x - 1$. (10)

4. a) Define the radius of curvature. If ρ_1 and ρ_2 be the radii of the curvature at the ends of a focal chord of the parabola $y^2 = 4ax$, then prove that $\rho_1^{-2/3} + \rho_2^{-2/3} = (2a)^{-2/3}$. (12)

- b) State Rolle's theorem. Examine the validity of Rolle's theorem for $f(x) = 9x^2 + 4x + 3$; in $(-1, 1)$. (12)

- c) Prove that the curves $r^n = a^n \cos n\theta$ and $r^n = b^n \sin n\theta$ cut orthogonally. (11)

SECTION B

(Answer **ANY THREE** questions from this section in Script B)

5. a) Integrate the following: (12)

$$\int \frac{dx}{x^4(2+3x)^3}$$

- b) Integrate the following: (12)

$$\int \frac{dx}{\sin x(2 + \cos x - 2 \sin x)}$$

- c) Integrate the following: (11)

$$\int \frac{(x+2)\sqrt{x+2}}{\sqrt{x-2}} dx$$

6. a) Evaluate the following: (12)

$$\int_0^{\infty} \frac{1 - e^{-xt^2}}{t^2} dt$$

b) Evaluate the following: (10)

$$\lim_{n \rightarrow \infty} \left[\frac{1}{n} + \frac{\sqrt{(n^2 - 1^2)}}{n^2} + \dots + \frac{\sqrt{n^2 \oplus (n-1)^2}}{n^2} \right]$$

c) Define Beta and Gamma functions. Prove that $B(m, n) = \frac{\Gamma(m)\Gamma(n)}{\Gamma(m+n)}$. Also, find the value of $\Gamma[m](1-m)$. (13)

7. a) Evaluate the following: (11)

$$\int_1^2 \sqrt{(x-1)(2-x)} dx$$

b) If $I_n = \int_0^{\pi/2} \sin^n x dx$, then prove that $I_n = \frac{n-1}{n} I_{n-2}$. (12)

c) Evaluate the following: (12)

$$\int_0^{\pi/2} \frac{dx}{\sqrt{1 - \frac{1}{2} \sin^2 x}}$$

8. a) Determine whether the following functions are functionally dependent or not? If dependent, find a relation among them for, $u_1 = \frac{x-y}{x+z}$, $u_2 = \frac{x+z}{y+z}$. (12)

b) Transform the integral $\int_{-2}^0 \int_{-x-2}^0 (xy+3) dy dx$ by using the relation $x = u+v$ and $y = u-v$. Hence evaluate it. (12)

c) Find the volume bounded by the plane $2x + y + z = 4$, the cylinder $x^2 + y^2 = 1$ and the xy -plane, lying in the first octant. (11)

KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
B.Sc. Engineering 1st Year 1st Term Examination, 2021
Department of Computer Science and Engineering
PHY 1107
Physics

TIME: 3 hours

FULL MARKS: 210

- N.B. i) Answer **ANY THREE** questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.

SECTION A

(Answer **ANY THREE** questions from this section in Script A)

1. a) What do you mean by phase velocity and group velocity? Establish a relation between phase velocity and group velocity. (10)
- b) Draw the diagram for the scattering of a photon by an electron and also draw the vector diagram for momenta and show that (15)
$$\lambda' - \lambda = \frac{h}{m_0 c} (1 - \cos\phi),$$
where the symbols have their usual meanings.
- c) A monochromatic X-ray beam whose wavelength is 55.8 pm is scattered through 46°. Find the wavelength of the scattered beam. (10)
2. a) Discuss vector atom model. Write down the names of all quantum number associated with vector atom model. (13)
- b) Find the S , L and J values that correspond to each of the following states: (10) $1_{S_0}, 3_{P_2}, 2_{D_{3/2}}, 5_{F_5}, 6_{H_{5/2}}.$
- c) What is Hermitian operator? Show that, the eigen value of a Hermitian operator is real. (12)
3. a) Derive an expression for three-dimensional time dependent Schrödinger equation. (12)
- b) Derive an expression for probability current for a free particle. (13)
- c) A particle limited to the x axis has the wave function $\Psi = ax$ between $x = 0$ and $x = 1$; $\Psi = 0$ elsewhere. (a) Find the probability that the particle can be found between $x = 0.45$ and $x = 0.55$, (b) Find the expectation value $\langle x \rangle$ of the particle's position. (10)
4. a) Explain how chromatic aberration may be removed in the case of a combination of two lenses in contact. (12)
- b) Give, with necessary theory, Newton's rings method for the determination of the wavelength of monochromatic light. How can we get a bright center? (13)
- c) In Young's double slit experiment, the separation of the slits is 1.9 mm and the fringe spacing is 0.31 mm at a distance of 1 meter from the slits. Calculate the wavelength of light. (10)

SECTION B

(Answer **ANY THREE** questions from this section in Script B)

5. a) In practice, how many crystal systems are possible? Give the names starting the relationship between crystallography axes and the angle between them. (15)
- b) Define atomic packing fraction. Find the atomic packing fraction in a crystal for (i) Simple cubic, (ii) Body centered cubic and (iii) Face centered cubic structures, treating the atoms as spherical. (10)
- c) An X-ray beam of wavelength 3Å is diffracted from the [001] planes of a cubic crystal. The first order diffraction is obtained at an angle of 40.5°. Determine the spacing between the [001] planes and the volume of the unit cell. (10)
6. a) Define and construct a reciprocal lattice. Find the magnitude of reciprocal lattice vector. (12)
- b) What are phonons? Express the laws of conservation of energy and momentum in the case of inelastic scattering of a photon by a phonon. (13)
- c) Compare the frequencies of sound waves of wavelength $\lambda = 1.24 \times 10^{-7}$ cm for (i) a homogenous line, (ii) Acoustic waves on a linear lattice containing two identical atoms per primitive cell of interatomic spacing 2.6Å and (iii) light waves of same wavelength given that $v_0 = 10^5$ cm/sec. (10)

7. a) What are the outstanding properties of metals in the case of free electron model? What are static and transport properties in case of free electron model? (10)
- b) Derive the vibrational modes of a monoatomic linear lattice dispersion relation and discuss various condition for low and high frequencies. (15)
- c) Copper has a mass density $\rho_m = 8.92 \text{ gm/cm}^3$. and an electrical resistivity $\rho = 1.57 \times 10^{-8} \text{ ohm-m}$. Calculate (i) The concentration of the conduction electrons, (ii) The mean free time τ , (iii) The Fermi energy E_F and (iv) The Fermi velocity v_F . (10)
8. a) Give the brief outlines of the form of input energy of a LASER. Write important properties of LASER light. (13)
- b) Explain lasing action. Describe the working principle of Ruby laser with suitable diagram. (12)
- c) The coherence length for the red cadmium line of wavelength $6.44 \times 10^{-7} \text{ m}$ is 30 cm. (10)
Calculate (i) The number of oscillations corresponding to the coherence length and (ii) The coherence time.

KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
 B.Sc. Engineering 1st Year 1st Term Examination, 2021
 Department of Computer Science and Engineering
 CSE 1107
 Discrete Mathematics

TIME: 3 hours

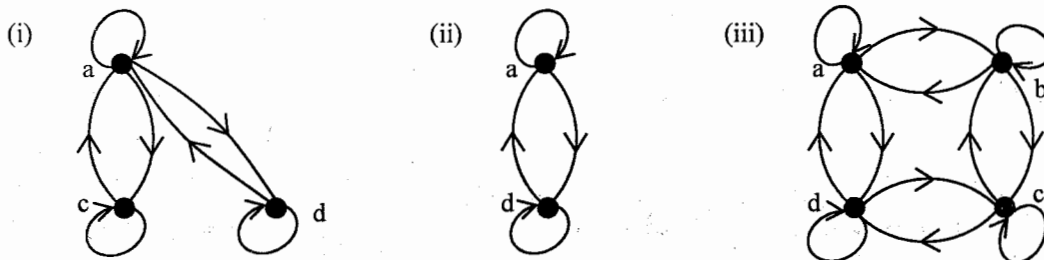
FULL MARKS: 210

- N.B. i) Answer **ANY THREE** questions from each section in separate scripts.
 ii) Figures in the right margin indicate full marks.

SECTION A

(Answer **ANY THREE** questions from this section in Script A)

1. a) Find the domain and range of these functions: (08)
- i) The function that assigns to each pair of positive integers the maximum of these two integers.
 - ii) The function that assigns to each positive integer the number of the digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 that do not appear as decimal digits of the integers.
 - iii) The function that assigns to a bit string the number of times the block 11 appears.
 - iv) The function that assigns to a bit string the numerical position of the first 1 in the string and that assigns the value 0 to a bit string consisting of all 0s.
- b) Define sequence. Let the sum of the geometric series, a, ar, ar^2, \dots, ar^k is given by (09)
 $S = \sum_{i=0}^k ar^i$, where $a, r \in R$. Reduce the closed form of S.
- c) Determine symmetric, asymmetric and antisymmetric relations from the following graphs: (10)



- d) Find the generating function of the sequence $1, a, a^2, a^3, \dots$ (08)
2. a) Let d_n denotes the n^{th} term of a sequence satisfying the given initial condition(s) and the recurrence relation. Compute the first ten terms of the sequence. (05)
 $d_1 = 1, d_2 = 2, d_3 = 3$
 $d_n = d_{n-1} + d_{n-2} + d_{n-3}, \text{ for } n \geq 4$
- b) During a month with 30 days, a baseball team plays at least one game a day, but no more than 45 games. Show that there must be a period of same number of consecutive days during which the team must play exactly 14 games. (10)
- c) What is algebraic system? What are the conditions needed for an algebraic system to be a group? Give example. (10)
- d) Discuss the properties of the operations of an algebraic system. (10)
3. a) Each user on a computer system has a password, which is five to seven characters long, where each character is an uppercase or lowercase letter or a digit. Each password must contain at least one letter. How many possible passwords are there? (12)
- b) What are the conditions that an algebraic system to be a ring? Give example. (10)
- c) Define Monoid. Prove that $(N; X)$ is a monoid. (08)
- d) What is the coefficient of $x^{12}y^{13}$ in the expansion of $(2x + 4y)^{25}$? (05)
4. a) Let $A = \{1, 2, 3, 4\}$ and R is a relation on A such that $R = \{(a, b) \mid a \text{ divides } b\}$, show that different representations of R and check whether it is symmetric, anti-symmetric and transitive or not. (10)
- b) What are the equivalence classes of 0 and 1 for congruence modulo 4? (10)
- c) For each of the following pair of sets, determine whether the first is a subset of the second, the second is a subset of the first, or neither is a subset of the other. (05)
- i) The set of airline flights from New York to New Delhi, the set of nonstop airline flights from New York to New Delhi.
 - ii) The set of people who speak English, the set of people who speak Chinese.
 - iii) The set of flying squirrels, the set of living creatures that can fly.
- d) Find the complexity of binary search from its recurrence relation. (10)

SECTION B

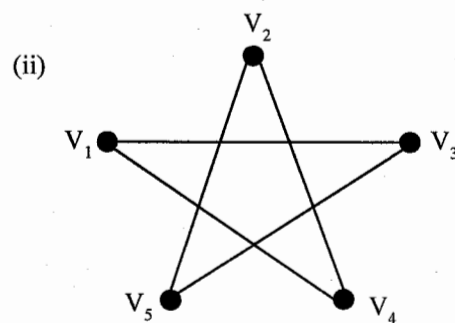
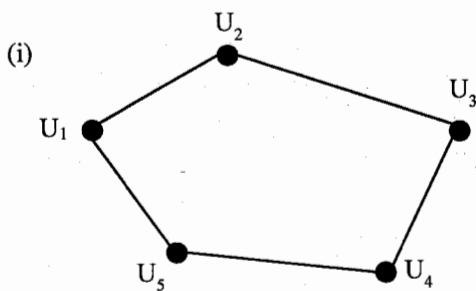
(Answer ANY THREE questions from this section in Script B)

5. a) Differentiate between propositional logic and predicative logic using example(s). (10)
- b) Match each symbolic proposition (i) – (v) with the number of the phrase that applies to it. (10)
- | | |
|---|--|
| i) $q \rightarrow p$ | 1) Is a tautology. |
| ii) $q \vee \neg p$ | 2) Is the contrapositive of (i). |
| iii) $(p \wedge q) \vee (\neg p \wedge \neg q)$ | 3) Is equivalent to p implies q . |
| iv) $\neg p \rightarrow \neg q$ | 4) Is equivalent to p if and only if q . |
| v) $(p \wedge q) \rightarrow (p \vee q)$ | 5) Is the symbolic expression for “ q only if p ”. |
- c) List the “rules of inference” for mathematical reasoning. Show that the hypothesis given below lead to the conclusion: If I do not finish my program, then I will wake up refreshed. (15)
- “If you send me an email, then I will finish my program. If you do not send me an email, then I will go to sleep early. If I go to sleep early, I will wake up refreshed” (Use rules of inference only).

6. a) Classify different proof techniques using example(s). (10)
- b) Prove the following using direct proofs, contrapositive proofs, or proof by contradiction: (15)
- i) If $a|b$ and $a|c$, then $a|(b + c)$.
 - ii) If $n \in \mathbb{Z}$, then $5n^2 + 3n + 7$ is odd.
 - iii) Suppose $a, b \in \mathbb{Z}$, if both $a \cdot b$ and $a + b$ are even, then both a and b are even.
- c) Prove the following using mathematical induction: (10)

$$1^3 + 2^3 + 3^3 + \dots + n^3 = \frac{n^2(n + 1)^2}{4}$$

7. a) What is prime factorization? Explain it using example. What is its applications? (08)
- b) For all positive natural numbers a, b, c , prove that $gcd(a, gcd(b, c)) = gcd(gcd(a, b), c)$. (05)
- c) There are certain things whose number is unknown. When divided by 3, the remainder is 2; when divided by 5 the remainder is 3; and when divided by 7, the remainder is 2. What will be the number of things? (10)
- d) State and prove the Chinese remainder theorem. (12)
8. a) What is a graph? Compare the following graphs: (12)
- (i) Simple graph, (ii) Multigraph (iii) Pseudograph, (iv) Directed graph and (v) Directed multigraph
- b) Explain different representations of graphs using example(s). (08)
- c) State the general conditions for two graphs to be isomorphic. Determine whether the following graphs is isomorphic or not. If yes, show the reasons. (10)



- d) Draw the graph for the following adjacency matrix and check whether the graph represents a tree. (05)

$$A = \begin{bmatrix} 1 & 1 & 1 & 0 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 1 \\ 1 & 1 & 1 & 0 \end{bmatrix}$$

KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
 B.Sc. Engineering 1st Year 1st Term Examination, 2021
 Department of Computer Science and Engineering
 EEE 1107
 Basic Electrical Engineering

TIME: 3 hours

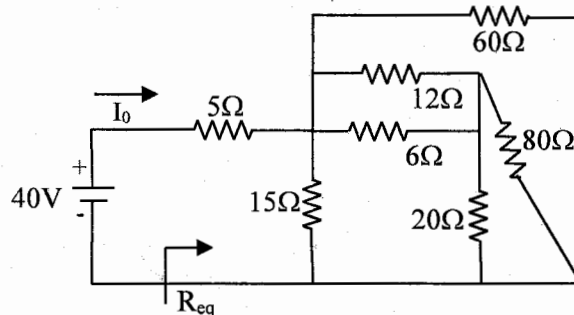
FULL MARKS: 210

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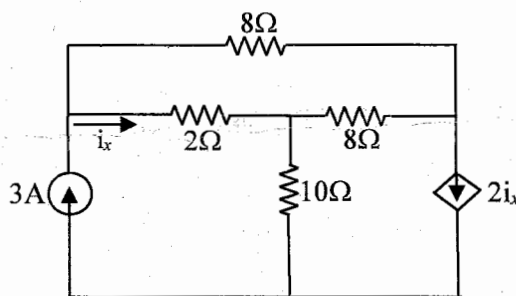
SECTION A

(Answer **ANY THREE** questions from this section in Script A)

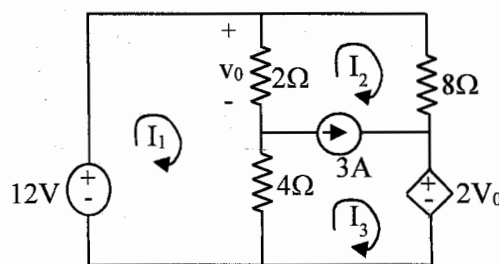
1. a) State and Explain voltage divider rule, current divider rule and linear bilateral circuit. (09)
 b) For the circuit shown in the following figure, find the equivalent resistance R_{eq} , current I_0 , (11)
 power delivered to the circuit, and power absorbed by the 5Ω resistor.



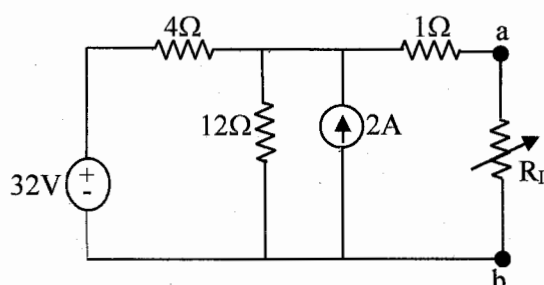
- c) Define super node. Using nodal analysis determine the voltages at each node of circuit shown (10)
 in the following figure:



- d) Define electrical sources. Classify and draw the symbols of different electrical sources. (05)
2. a) Transfer a delta network to equivalent wye network, and find each of the wye connected (10)
 resistance in terms of delta resistance.
 b) Find the value of currents I_1 , I_2 and I_3 using mesh analysis for the following figure. (10)

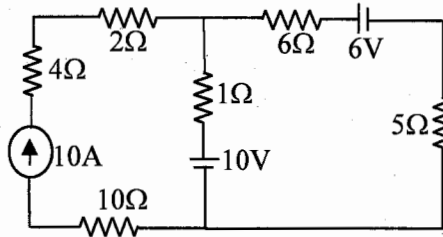


- c) Find the Thevenin equivalent circuit of the circuit shown in the following figure to the left of (10)
 the terminals $a-b$. Then find the current through $R_L = 6\Omega$



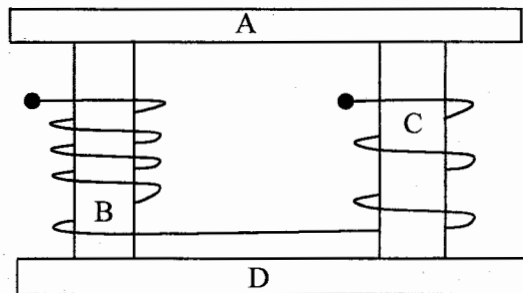
- d) What is source transformation? Explain this with proper circuit diagram. (05)

3. a) State superposition theorem. Using this theorem find the current through 1Ω resistor for the following circuit. (12)



- b) State Ohm's law and Ampere's law for magnetic circuit. (06)
 c) Find the mmf required to establish a flux of 150 kilolines in the magnetic circuit shown in the following figure. (12)

Part	Material	Cross Section	Mean length
A	Cast Steel	1.5 sq inch	5 inch
D	Cast Iron	1.4 sq inch	5 inch
B	Cast Steel	2.0 sq inch	4 inch
C	Wrought Iron	3.0 sq inch	4 inch

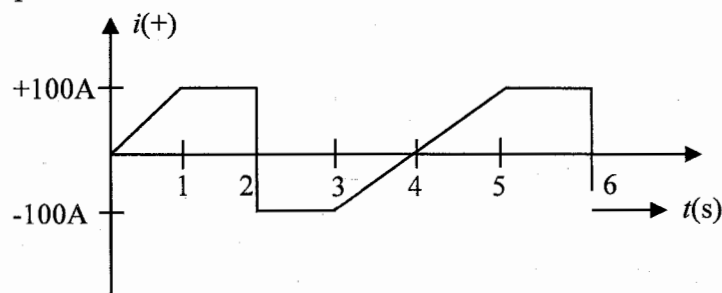


- d) Define the following terms i) Reluctance ii) Magnetizing force iii) Flux. (05)
4. a) Briefly explain the operation of a *dc* generator. Derive the expression of emf of a *dc* generator. (10)
 b) Deduce the condition for maximum efficiency of a *dc* generator. (07)
 c) Define back emf of a motor. What is the significance of back emf? (06)
 d) A 4-pole short-shunt lap-wound generator supplies 25 kw at a terminal voltage of 500V. The armature resistance is 0.03Ω , series field resistance is 0.2Ω , and shunt field resistance is 255Ω . The brush drop may be taken as 1V per brush. Determine the emf generated. Calculate the number of conductor if the speed is 1200 rpm and flux per pole is 0.02 wb. Neglect armature reaction. (12)

SECTION B

(Answer ANY THREE questions from this section in Script B)

5. a) The current through a 0.1 H coil is $i = 7 \sin(377t - 70^\circ)$. Find the sinusoidal expression for the voltages across the coil. Sketch the v and i curves. (07)
 b) Define impedance. Find out the impedance of the following branches i) R-C branch ii) R-L-C branch. Also draw the phasor diagram of that branches. (12)
 c) Find the average and rms value of the waveform shown in the following figure. Also determine the form factor and peak factor. (10)

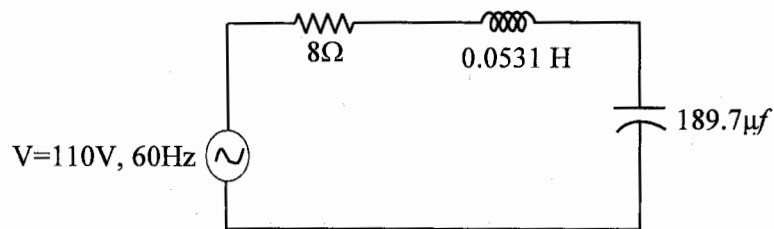


- d) State phase and phase difference. Find the angle of phase difference between $v = 240\sin(\omega t + 30^\circ)$ and $i = -10 \cos(\omega t - 70^\circ)$. (06)
6. a) A circuit current $i = 10\cos 157t$ amps flows in an RL circuit containing $R = 15\Omega$ and $L = 0.0637$ henry, (13)
 i) Write the equation of v as a function of time.
 ii) Write the expression of power as a function of time.
 iii) What is the value of the impedance?
 iv) Find the amount of energy stored during a quarter cycle.

- b) Find the possible roots of $\sqrt[3]{\frac{10\angle 45^\circ 5e^{j60^\circ}(-4.047 - j2.94)}{1 - j1.732}}$ (10)

- c) Describe the open circuit test and short circuit test of a single-phase transformer. (12)

7. a) For the circuit shown in the following figure calculate: current, power, power-factor, vars, (15) reactive-factor, and volt-amperes. Also calculate the voltage drop across each circuit element.



- b) Write down the working principle of a transformer. Also derive its emf equation and proved (10) that voltage induced in both primary and secondary is constant.
- c) Draw the equivalent circuit of a transformer and find out the total impedance between input (10) terminals.
8. a) What are the basic differences between alternator and synchronous motor? State the advantages (10) of stationary armature in an alternator. Describe V-curves.
- b) Describe the principle of operation of a synchronous motor. Why synchronous motor is not (10) self-starting? Explain briefly. Mention some important applications of synchronous machine.
- c) Mention the different types of 3 – ϕ transformer connections. Describe them briefly. Write (15) down the advantages and disadvantages of 3 – ϕ transformer.

KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY
B.Sc. Engineering 1st Year 1st Term Examination, 2021
Department of Computer Science and Engineering
HUM 1107

English and Human Communication

TIME: 3 hours

FULL MARKS: 210

- N.B. i) Answer **ANY THREE** questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.

SECTION A

(Answer **ANY THREE** questions from this section in Script A)

1. a) Make sentences on the following structures using the verbs given in brackets. (14)
- i) Subject + Intransitive verb + adverbial. (go as verb)
 - ii) Subject + Linking verb + adj. complement + extension. (seem as verb)
 - iii) Subject + Linking verb + noun complement + extension. (become as adverb)
 - iv) Subject + Transitive verb + Infinitive as object. (want as verb)
 - v) Subject + Transitive verb + object + noun complement. (name as verb)
 - vi) Subject + Transitive verb + object + adj. complement. (hold as verb)
 - vii) There + Verb + subject + extension. (any verb)
- b) Make sentences using the following Modals as directed. (12)
- i) Could (To express inference)
 - ii) Could (To express opportunity in the past which was not done)
 - iii) Must (To express logical deduction in the present)
 - iv) Be to (To express command)
 - v) Be going to (To express plan)
 - vi) May (To express guess about the present)
- c) Make sentences using the following phrases and idioms: By the by, Face the music, At large, Sit tight, Hush money, In a fix. (09)
2. a) Transform the following sentences as directed. (14)
- i) My teacher declined the request. (negative)
 - ii) There was no cloud without a silver lining. (affirmative)
 - iii) It doesn't matter if I go. (interrogative)
 - iv) What a wonderful bridge the Padma is! (assertive)
 - v) Asif knows English better than Arif. (positive)
 - vi) The woman was not so old as I expected. (comparative)
 - vii) Let the order to open fire. (passive)
- b) Correct the following sentences. (12)
- i) Yesterday I have received a letter from my friend.
 - ii) He is living in the UK since 1995.
 - iii) You had better joined this post.
 - iv) He returned back to the town.
 - v) Hardly I had reached the station than the train left.
 - vi) I shall do it by hook and crook.
- c) Make a new word with each of the following prefixes and suffixes and use them in sentences: (09)
Am, Be, Pro, De, age, ling.
3. a) Frame wh questions from the underlined parts of the following answers. (14)
- i) She gave the boy a pen.
 - ii) I met him on my way to university.
 - iii) He speaks English like the English.
 - iv) We read for pleasure.
 - v) His order prevented me from going there.
 - vi) Of the three shirts I like the white one most.
 - vii) He drives his father's car.
- b) Make sentences using the following words as directed. (12)
Phone (as verb); Phone (as adjective); But (as pronoun); But (as noun); Net (as verb); Net (as adjective)
- c) Change the following words as directed and make sentences with the changed words. (09)
Mind (into adjective); Danger (into verb); Order (into adjective); Readiness (into adverb); Secret (into noun); Weight (into verb).

4. a) Complete the sentences with subordinate clauses as directed. (14)
- i) surprised us all. (noun clause)
 - ii) She is confident (noun clause)
 - iii) He achieved a first class, (adjective clause)
 - iv), I will give you a call. (adverb clause of time)
 - v) He locked the door (adverb clause of purpose)
 - vi), the teacher refused to let him in. (adverb clause of reason)
 - vii), I still could not blame him. (adverb clause of concession)
- b) Make sentences expressing the following emotions/notions. (12)
- i) Apology ii) Condolence iii) Imprecation iv) Invitation v) Offer vi) Wish
- c) Supply a suitable word to fill the blanks. (09)
- i) He has placed his in him.
 - ii) Smoking is by everybody.
 - iii) It is doubtful he will return.
 - iv) Hearing the news, he hurried home.
 - v) walking along the road, he met me.
 - vi) The man is to die.

SECTION B

(Answer ANY THREE questions from this section in Script B)

5. a) Read the passage and answer the following questions: (20)
- Today's teenagers are a generation for whom the line between online and real world interaction is practically non-existent. The apotheosis of this is myspace.com, which began as a social networking site, but which now is 'a nightclub open 24 hours a day, seven days a week'. Myspace currently receives more daily visits than Google and Amazon. The site has 40 million members worldwide, each using their personal page to email and post bulletins, blogs and photos of themselves. It is precisely that creation of identity which has made it such a teen sensation.
- It's like a voluntary Big Brother. For millions of teenagers, the Internet is like a drug. And the madness of the Internet and of adolescent hormones can be especially potent combination. On one occasion, 14-years-old Kara met 18-years-old David on Myspace. The relationship, which began as friendship, intensified on the site. When her parents, who opposed the relationship, tried to cut off her online access to him, her parents were shot dead by the boy.
- The internet fuels fantasy. You can be an Internet warrior, an Internet seductress. Kids are using these sites to act out fantasy. On the Internet, you are allowed the chance to be the best. Besides, lonely, unpopular or troubled teenagers get online and play the roles they want to be. It doesn't matter if anyone is actually reading their posts or not; it just feels good to let it all out, and see it is archived forever.
- i) Why being a teenager and using Internet is such a potent combination?
 - ii) Why were Kara's parents murdered?
 - iii) What is meant by "Internet fuels fantasy"?
 - iv) Do you think Internet is addictive? Why?
- b) Make a precis of the above passage with a suitable title. (15)
6. a) Amplify the idea contained in the statement: (20)
- "Appearance can be deceptive"
- b) Write a contrast paragraph on 'Family life and hostel life'. (15)
7. a) Bloomberg is looking for a software developer who will innovate new and better ways to give financial professionals the best possible services. Prepare your CV and apply for the post. (20)
- b) Suppose you are the owner of a shopping center in a five star hotel. Your employees attracted highest numbers of foreigners after COVID-19. Write a memo to inform salary increment and other facilities for the additional profit. (15)
8. a) Write a free composition on the following topic: (35)
- 'Modern technologies in modern daily life'