

B.Sc. (Sem.-6) Examination

CC 307

Geology

March 2019

[Max. Marks : 70]

Time : 2-30 Hours]

1. (અ) ખનિજ નિક્ષેપોની વ્યાખ્યા આપો અને સમજાવો. ખનિજ નિક્ષેપોના ઇતિહાસ પર નોંધ 18
ઉમેરો.
- અથવા
- (અ) (i) ખનિજ નિક્ષેપોના ઉત્પત્તિ સંબંધી વર્ગીકરણ. 09
(ii) એન્ડોલ્યુસાઈટ ખનિજ સમૂહની ઉત્પત્તિ. 09
- (બ) ટૂંકા પ્રશ્નો (છ માંથી કોઈ પણ ચાર) 08
(i) ધાતુ ખનિજની વ્યાખ્યા આપો.
(ii) ખનિજ સંશોધન પદ્ધતિના નામ આપો.
(iii) ખનિજ સંશોધનના વિવિધ પાસાઓ દર્શાવો.
(iv) લિન્ડગ્રેનના વર્ગીકરણનો આધાર આપો.
(v) ક્રાઈસોટાઈલની વિવિધ પ્રાપ્તિસ્થિતિનો ઉલ્લેખ કરો.
(vi) ટેલુના ભારતીય પ્રાપ્તિસ્થાનો દર્શાવો.
2. (અ) સ્ફટિકિકરણ સ્વભેદન અને ગીરનાર સંકુલનું વર્ણન કરો. 18
અથવા
- (અ) (i) ઉષ્ણજળજન્ય દ્રાવણોની ઉત્પત્તિ, દબાણ અને ઉષ્ણતા. 09
(ii) એસિડ અગ્નિકૃત ખડકો પર મેગ્માજન્ય બાષ્પાયનોની અસરો. 09
- (બ) ટૂંકા પ્રશ્નો (છ માંથી કોઈ પણ ચાર) 08
(i) કણશ: વિસ્થાપન માટેના સંજોગો દર્શાવો.
(ii) કણશ: વિસ્થાપનની વ્યાખ્યા આપો.
(iii) પ્રવાહી અદ્રાવ્યતા શું છે?
(iv) ક્રમિક ખનિજ શિરાની આકૃતિ દોરો.
(v) સ્વાંગીકરણની વ્યાખ્યા આપો.
(vi) ગેશ શિરાઓ શું છે?
3. (અ) કાંપમય અને વાયુવીય ભૌતિક સંકેન્દ્રણોનું વર્ણન કરો. 18
અથવા
- (અ) (i) જળકૃત ખનિજતેલ ચક્ર. 09
(ii) આચ્છાદિત સમદ્વિની કક્ષામાં $CuSO_4$ નું યોગદાન. 09
- (બ) ટૂંકા પ્રશ્નો (પાંચમાંથી કોઈ પણ ત્રણ) 03
(i) ખનિજ નિર્દેશકો શું છે?
(ii) ભૌતિક સંકેન્દ્રણોની વ્યાખ્યા આપો.
(iii) જળકૃત નિક્ષેપો બનવા માટેના સંજોગો આપો.
(iv) અવશિષ્ટ નિક્ષેપોની વ્યાખ્યા આપો.
(v) બાષ્પાયનો શું છે?
૪. (અ) રત્નોની ચર્ચા કરો. 18
અથવા
- (અ) (i) ભારતના તાંબા નિક્ષેપો. 09
(ii) ભારતના મેગ્નેસાઈટ નિક્ષેપો. 09
- (બ) ટૂંકા પ્રશ્નો (પાંચમાંથી કોઈ પણ ત્રણ) 03
(i) કોલાર સોના ક્ષેત્ર ના પ્રાદેશિક ખડકનું નામ લખો.
(ii) ટિટેનીયમ ધાતુ ખનિજોની ખનિજવિદ્યા આપો.
(iii) ભારતમાં ટીનના પ્રાપ્તિસ્થાનો દર્શાવો.
(iv) રાસાયણિક ઉદ્યોગોમાં વપરાતી ખનિજોના નામ લખો.
(v) કાયર ક્ષેત્રની પ્રાપ્તિસ્થિતિ આપો.

1. (A) Define and explain mineral deposits. Add a note on history of mineral deposits. 14
- OR**
- (A) (i) Genetic classification of mineral deposits. 07
(ii) Formation of andalusite group of minerals. 07
- (B) Short Questions (Any four out of six) 04
(i) Define an ore.
(ii) Name the methods of mineral exploration.
(iii) State the aspects of mineral exploitation.
(iv) Give the base for Lindgren's classification.
(v) Mention various modes of occurrences of chrysotile.
(vi) State the Indian occurrences of talc.
2. (A) Describe crystallisation differentiation and Girnar complex. 14
- OR**
- (A) (i) Origin, pressure and temperature of hydrothermal solutions. 07
(ii) Effects of magmatic emanations on acid igneous rocks. 07
- (B) Short Questions (Any four out of six) 04
(i) State the conditions of metasomatic replacement.
(ii) Define metasomatism.
(iii) What is liquid immiscibility?
(iv) Draw a figure of successive mineral veins.
(v) Define assimilation.
(vi) What are gash veins?
3. (A) Describe alluvial and aeolian placers. 14
- OR**
- (A) (i) Sedimentary petroleum cycle. 07
(ii) Role of CuSO_4 in the zone of supergene enrichment. 07
- (B) Short Questions (Any three out of five) 03
(i) What are gossans?
(ii) Define placers.
(iii) Provide conditions for the formation of sedimentary deposits.
(iv) Define residual deposits.
(v) What are evaporites?
4. (A) Discuss gemstones. 14
- OR**
- (A) (i) Copper deposits of India. 07
(ii) Magnesite deposits of India. 07
- (B) Short Questions (Any three out of five) 03
(i) Name the host rock of Kolar gold field.
(ii) Give the mineralogy of titanium ores.
(iii) State the occurrences of tin in India.
(iv) Name the minerals used in chemical industries.
(v) Give the mode of occurrence of fire clay.

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Computer Science

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

- Q-1 A **Write The Following.**
- (I) Explain two types of coding styles in detail (14)
- Or**
- (I) Explain all coding standards in detail with detail of error, fault and failure concept. (14)
- Q-1 B. Short Questions(Attempt Four) (4)
1. What is stub or driver?
 2. Which is longest phase of whole SDLC?
 3. What is debugging?
 4. What is error?
 5. What is v&v activity?
 6. What is other name of code reading?
- Q-2 A **Write The Following.**
- (I) Explain white box testing in detail with any two subtypes in detail (14)
- Or**
- (I) Explain any two code verification techniques in brief. (14)
- Q-2 B. Do as Directed(Attempt four) (4)
1. What is cost driver?

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2. What is goal of project management activities?
4. What is group review meeting?
5. What is goal of risk management?
6. What is quality plan?

- Q-3 A Write The Following.**
- (I) Explain Blackbox testing in detail with its all sub types. (14)
- Or**
- (I) Explain team structure in detail with project roles and staffing detail. (14)
- Q-3 B. Short Questions(Attempt Any three) (3)**
1. What is test case?
 2. What is other name of software development team?
 3. What is exhaustive testing?
 4. Which are properties of test criteria?
 5. What is other name of white box testing?
- Q-4 A Write The Following.**
- (I) Explain COCOMO Model in detail with single variable model (14)
- Or**
- (I) Explain risk analysis with all identification methods with all mitigation steps (14)
- Q-4 B. Short Questions(Attempt Three) (3)**
1. Who is inventor of cocomo model?
 2. Which is common method for risk identification?
 3. C-use stands for.....?
 4. What is dead code?
 5. What is common factor for effort estimation model?

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Statistics

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

Instructions

1. All questions are compulsory and carry equal marks.
2. Use of scientific calculator is allowed.
3. Statistical & logarithmic tables and graph papers will be provided on request.

- Q.1 a 1 State two parameter *Cauchy Distribution*. Obtain characteristic function of *Cauchy distribution*. 7
- 2 Derive mean and variance of *Laplace distribution*. 7
- OR
- a 1 What is *log normal distribution*? Derive its raw moments. 7
- 2 In usual notations, for *Cauchy distribution* with parameter μ , show that mode and median are same and equal to μ . 7
- b Answer **ANY TWO** of the following: 4
- 1 For *Cauchy distribution*, mean does not exist. Give reason.
- 2 State difference between *Double Exponential* and *Laplace distributions*.
- 3 State characteristic function of *double exponential distribution*.
- Q.2 a 1 Derive marginal distribution of X and conditional distributions of Y given X in case of *bivariate normal distribution*. 7
- 2 State and prove two random variable (X, Y) following *Bivariate Normal Distribution*, are independent if and only if $\rho = 0$. 7
- OR
- a 1 Derive the moment generating function of *Bivariate Normal Distribution*. 7
- 2 Let X and Y be jointly normal random variables with parameters $\mu_x = 0$, $\mu_y = -1$, $\sigma_x^2 = 1$, $\sigma_y^2 = 4$, $\rho = \frac{-1}{2}$, then, find $P(X+Y > 0)$ 7
- b Answer **ANY TWO** of the following: 4
- 1 If X and Y have *bivariate normal distribution* with parameters $(3, 1, 16, 25, .6)$, find $\Pr[3 < Y < 8]$
- 2 If X and Y have *bivariate normal distribution*, then state the mean of distribution of X given Y .
- 3 State the regression line of X given Y as an appropriate conditional expectation.
- Q.3 a 1 In usual notations, state and prove general form of *Chebyshev's inequality*. 7
- Hence or otherwise, prove that $P[|x - \mu| \geq k\sigma] \leq \frac{1}{k^2}$
- 2 If the probability density function of a random variable X is given by 7

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$$f(x) = \frac{1}{B(5,5)} x^4 (1-x)^4, 0 < x < 1 \text{ and } f(x)=0, \text{ otherwise, then}$$

Find the probability that x will take a value within 2 standard deviation of the mean and compare it with $P(0.2 < x < 0.8)$.

OR

- a
- 1 State and prove Bernoulli's Law of large numbers. 7
 - 2 Examine whether the weak law of large numbers holds good for the sequence $X_n, n=1,2,3,\dots$ of n independent variables where $P\left(X_n = \frac{1}{\sqrt{n}}\right) = \frac{2}{3}$, and $P\left(X_n = -\frac{1}{\sqrt{n}}\right) = \frac{1}{3}$. 7
- b
- Answer ANY THREE of the following: 3
- 1 Which measure of dispersion is used in Chebyshev's inequality?
 - 2 Let X be a random variable with $E(X) = 0$ and $V(X) = 1$. What integer value k will assure that $P(|X| \geq k) \leq 0.01$?
 - 3 State the use of Chebyshev's Inequality.
 - 4 Define convergence in probability.
 - 5 Define weak law of large numbers.
- Q.4 a
- 1 State Liapounoff's form of Central limit theorem. State uses of Central Limit Theorem. 7
 - 2 A bank teller serves customers standing in the queue one by one. If the service time X_i for customer i has mean $EX_i=2$ (minutes) and $Var(X_i)=1$. Assume that service times for different bank customers are independent and Y be the total time the bank teller spends serving 50 customers. Find $P(90 < Y < 110)$. 7

OR

- a
- 1 If \bar{X} sample mean of a random sample of size n from $Po(m)$, (where m is parameter = 4), then using Central limit theorem, determine n such that
$$P\left[\left|\bar{X} - m\right| < \frac{1}{2}\right] = 0.954$$
 7
 - 2 State and prove Lindberg Levy's form of central limit theorem 7
- b
- Answer ANY THREE of the following 3
- 1 What is Central Limit theorem?
 - 2 Give one real life application of central limit theorem.
 - 3 State the purpose of continuity correction for central limit theorem.
 - 4 The record of weights of male population follows normal distribution. Its mean and standard deviation are 70 kg and 15 kg respectively. If a researcher considers the records of 50 males, then what would be the mean and standard deviation of the chosen sample?
 - 5 Central limit theorem is about the sampling distribution of the means of large numbers of random samples. Do you agree?

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Electronics

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

- Q.1 (A) (i) Draw the circuit of a log amplifier using OPAMP and derive the equation of output voltage. Explain the limitations of this circuit. (07)
 (ii) Draw the circuit of an antilog amplifier using OPAMPs and derive the equation of its output voltage. (07)

OR

- (i) Explain how a multiplier can be constructed by using log and antilog amplifiers. Explain the use of analog multiplier as frequency doubler. (07)
 (ii) Draw the circuit of an Integrator using OPAMP and derive the equation of its output voltage. Explain what type of output waveform will generated when the square-wave input is applied to the circuit. (07)

(B) Answer in short (Any Four): (04)

- (1) What is the function of comparator circuit?
- (2) Draw the characteristic of an ideal comparator?
- (3) What is regenerative comparator?
- (4) Draw the circuit for finding square root using analog multiplier.
- (5) Why an integrator is an attenuator circuit?
- (6) Draw the circuit of differentiator using OPAMP.

- Q.2 (A) (i) Draw the block diagram of a PLL and explain the function of each block. (07)
 (ii) Explain the use of Exclusive-OR gate as digital phase comparator. (07)

OR

- (i) Draw the circuit diagram of IC 566 connected as VCO. Derive the equation of frequency of output voltage. (07)
 (ii) Explain the working of PLL as frequency capturing device. Derive the equation of Lock-in Range for the PLL. (07)

(B) Answer in short (Any Four): (04)

- (1) What is the function of phase comparator circuit?
- (2) Define voltage to frequency conversion factor for VCO.
- (3) Define lock-range for PLL?
- (4) Define capture range for PLL?
- (5) What is operating supply voltage range for PLL IC-565?
- (6) Give at least one use of PLL.

- Q.3 (A) (i) Draw the cross-section view and symbol of an SCR. Draw the V-I characteristic of an SCR and explain its working. (07)
 (ii) Draw the circuit diagram of Half-wave rectifier using SCR, explain its working. Derive equation of output dc voltage. (07)

OR

- (i) Explain about the force commutation method to Turn-Off the SCR. Explain the advantages of this method. (07)
 (ii) Draw the circuit diagram of a static contactor using SCR and explain its working. (07)

(B) Answer in short (Any Three): (03)

- (1) Define latching current for SCR.
- (2) Define Holding current for SCR.
- (3) Define forward blocking voltage for SCR.
- (4) Why the name SCR is given?
- (5) What is the advantage of SCR rectifier circuit over diode rectifier circuit?

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- Q.4 (A) (i) Explain the construction, operation and characteristic of TRIAC. (07)
(ii) Explain the application of TRIAC as (i) High power switch (ii) Light dimmer. (07)
- OR
- (i) Explain the construction, operation and characteristic of DIAC. Explain working of light dimmer circuit. (07)
(ii) Draw the circuit diagram of UJT relaxation oscillator. Explain its working. Derive the equation for frequency of oscillation. (07)
- (B) . Answer in short (Any Three): (03)
- (1) What is Thyristor?
 - (2) What is the most common application of DIAC?
 - (3) Draw the circuit of Automatic voltage stabilizer.
 - (4) Name the three terminals of an UJT.
 - (5) Define: Intrinsic stand-off ratio.

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Health Hygiene

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

Que-1 (A) Explain Routine maintenance and clinical utilities at the hospitals [14]

OR

1. Write note on basic concepts of hospital management. [7]
2. Describe the various support services installed at the hospitals. [7]

(B) Answer the following (Any four) [4]

1. What is use of incineration facility in hospitals?
2. List pathological waste generated in the hospital.
3. Give full name for MHA.
4. What is bed ratio?
5. Explain the role of supply chain management in hospitals.
6. List types of manpower in hospital

Que-2 (A) Describe basic setup of operation theatre and its maintenance process. [14]

OR

1. Write the note standards and ISO certification for hospitals. [7]
2. Discuss sterilization protocol. [7]

(B) Answer the following (Any four) [4]

1. What is NABL?
2. Explain 'clear zone'
3. Name chemical vapours used for fumigation
4. What is validation process?
5. Give two benefits of NABL certification
6. What is use of Particle counter?

Que-3 (A) Explain first-aid treatment for cardiac failure and use of external defibrillator [14]

OR

1. Describe adult CPR. [7]
2. Explain first-aid treatment for burns [7]

(B) Answer any Three of the following [3]

1. What is a seizure?
2. CPR ratio for an infant is 15:2 in case of two rescuers (True/False)
3. Describe the sign of obstruction in air-way.
4. How to treat dehydration?
5. Inquiry on patient on any previous disease is a part of which ward procedure?

Que-4 (A) Discuss the pre-operative preparation and post-operative care. [14]

OR

1. Write a detailed note on care required in the event of post-partum. [7]
2. Explain diagnose and care during trauma [7]

(B) Answer any Three of the following [3]

1. What is intensive care unit?
2. When is artificial air-way needed?
3. What is the use of ventilator?
4. Neonatal weight less than 1200 grams is categorized under level III care. (True/False)
5. What is the aim of preparedness for emergency treatment?

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Geology
March 2019

Time : 2-30 Hours]

[Max. Marks : 70

1. સમજાવો: (અ) ઉપખંડોના પાયાના જટિલ ખડકો અને તેની ખડકવિધા. (18)
- (અ) (i) સોલ્ટ રેન્જ વિસ્તારનાં કેમ્બ્રિયન ખડકો. અથવા (09)
- (ii) લિપાક અને પો શ્રેણી. (09)
- (ક) ટૂંક જવાબ લખો (જ માંથી કોઈ પણ ચાર): (04)
- (1). કાગીર વિસ્તારનાં ધારવાડ ખડકોનાં નામ આપો.
- (2). સ્પિટી વિસ્તારનાં ઓર્ડોવિસિયન અને સાયલ્યુરીયનનાં સ્તરવિષાત્મક સ્તરાનુક્રમ આપો.
- (3). સોલ્ટ રેન્જનાં કેમ્બ્રિયન ખડક પ્રકારોના નામ આપો.
- (4). બાહ્ય-દ્વિપક્વમાં વિષ્ણુ કાળના કોય તેવા ખડકોનાં નામ આપો.
- (5). હિમાલયમાં હેમંત શ્રેણીની સ્તરાનુક્રમ આપો.
- (6). હિમાલયમાં મુદ્ધ શ્રેણીમાં કયા ખડકો મળે છે?
2. વર્ણન કરો: (અ) પ્રોડક્ટસ યૂનાખડકો અને પ્રોડક્ટસ પ્રાણી અવશેષ. (18)
- (અ) (i) ગિલિમલ રેતીખડકો અને કિલસ. અથવા (09)
- (ii) હિમાલયનો ઉચકવ. (09)
- (ક) ટૂંકમાં જવાબ લખો (જ માંથી કોઈ પણ ચાર): (04)
- (1). સ્પિટી શ્રેણીમાં મળતાં યુનેદાર કંકરનું પર્યાયવાચક નામ આપો.
- (2). સિવાલીક પ્રાણીઅવશેષનાં વિલોપનાં કારણો શું છે?
- (3). ખાદરની વ્યાખ્યા આપો.
- (4). હિમાલયમાં સ્પેકલ્સ રેતીખડકની વય શું છે?
- (5). બાહ્ય-દ્વિપક્વમાં કેઉપરનો સ્તરાનુક્રમ આપો.
- (6). બાહ્ય-દ્વિપક્વમાં કિયોટો યૂનાખડકની વય દર્શાવો.
3. નીચે લખો: (અ) કોયમાં સ્તરભંગની ઓળખાણ. (18)
- (અ) (i) નમન કોણ અને સ્તરભંગ ખંડનાં દેખીતા સંચલન આધારિત સ્તરભંગનાં વર્ગીકરણો. અથવા (09)
- (ii) કણકૃત ખડકોમાં સાંધાઓ. (09)
- (ક) ટૂંકમાં લખો (પાંચમાંથી કોઈપણ ત્રણ): (03)
- (1). ખનિજકરણની વ્યાખ્યા આપો.
- (2). સ્તરભંગ કોણની વ્યાખ્યા આપો.
- (3). અગ્નિકૃત ખડકોમાં જોવા મળતા જૂદા જૂદા પ્રકારનાં સાંધાઓનાં નામ આપો.
- (4). સાંધાઓની બે અગત્યતાઓ દર્શાવો.
- (5). અક્ષીય તલની વ્યાખ્યા આપો.
4. ચર્ચા કરો: (અ) લક્ષણ સાથે ઉડાઈ અને પ્રાપ્તિસ્થિતિ આધારિત ગેડનાં વર્ગીકરણો. (18)
- (અ) (i) ઘસારો, અતિઘસારો, નેપે અને ઝાળી આકારની સંરચના. અથવા (09)
- (ii) હિમાલયની સંરચના વિભાવના. (09)
- (ક) ટૂંકમાં લખો (પાંચમાંથી કોઈપણ ત્રણ): (03)
- (1). અરવલ્લીની એક સંરચના વિભાવના લખો.
- (2). ગેડનાં કોણીય ખુણાની વ્યાખ્યા આપો.
- (3). સ્તરબદ્ધતાનો ક્રમ એટલે શું?
- (4). દોરડા પટ્ટી (કીક બેડ) ની આકૃતિ દોરો.
- (5). એકદિશાકીય ગેડની વ્યાખ્યા આપો.

P.T. 0

1. Explain: (A) Fundamental complex of Himalaya and its petrology. (14)

(A) (i) Cambrian rocks of Salt Range area. OR (07)

(ii) Lipak and Po series. (07)

(C) Write brief answers (any four out of six): (04)

- (1). Provide name of Dharwar rocks of Kashmir area.
- (2). Give stratigraphic sequence of Ordovician and Silurian of Spiti area.
- (3). Name rock types of Cambrian of Salt Range.
- (4). Give names of the rocks which may be Vindhyan in age in extra-Peninsula.
- (5). Provide sequence of Haimanta series in Himalaya.
- (6). Which rocks are found in Muth series of Himalaya?

2. Describe: (A) *Productus* Limestones and *Productus* fauna. (14)

(A) (i) Giumal Sandstones and flysch. OR (07)

(ii) The elevation of Himalaya. (07)

(C) Write short answer (any four out of six): (04)

- (1). Name the term used for calcareous concretions occurring in Spiti shales.
- (2). What were the reasons for the extinction of Siwalik fauna?
- (3). Define Khadar.
- (4). What is the age of Speckled sandstone in Himalaya?
- (5). Provide sequence of Keuper in extra-Peninsula.
- (6). Give age of Kioto limestone in extra-Peninsula.

3. Write notes: (A) Identification of faults in the field. (14)

(A) (i) Classification of faults based on angle of dip and apparent movement of fault block. OR (07)

(ii) Joints in sedimentary rocks. (07)

(C) Write in short (any three out of five): (03)

- (1). Define mineralisation.
- (2). Define pitch of a fault.
- (3). Give names of different types of joints in igneous rocks.
- (4). Provide two importance of joints.
- (5). Define axial plane.

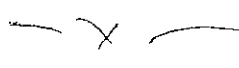
4. Discuss: (A) Classification of folds based on behaviour with depth and mode of occurrence. (14)

(A) (i) Thrusts, over-thrusts, nappes and imbricate structures. OR (07)

(ii) Structural concepts of Himalaya. (07)

(C) Write in brief (any three out of five): (03)

- (1). Write one structural concept of Aravalli.
- (2). Define plunge of a fold.
- (3). What is order of superposition?
- (4). Draw a diagram of kink bands.
- (5). Define monocline.



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Candidate's Seat No : _____

B.Sc. (Sem.-6) Examination

CC 308

Computer Science

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

Q-1 A **Write The Following.**
(I) Explain Exception handling with all built in exceptions in detail with example. (14)

Or

(I) Explain Graphics class with all methods and explain circle shape in detail with its example. (14)

Q-1 B. Short Questions(Attempt Four) (4)

1. Which is mandatory block of exception handling?
2. What is error?
3. Give any two methods name who share same co-ordinate system.
4. AWT stands for.....
5. What is throws keyword?
6. List down categories of error.

Q-2 A **Write The Following.**
(I) Explain Applet Life Cycle in detail. (14)

Or

(I) Explain difference between applet-application with steps of applet creation. (14)

Q-2 B. Do as Directed(Attempt four) (4)

- 1 Which file has not generated while occurring error?

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2. List down types of Applet.
3. Which is the most base class for java hierarchy?
4. Which package is by default imported in any java program?
5. which method has called in dead stage of applet
6. Which are two mandatory attributes of <applet>?

Q-3 A **Write The Following.**
(I) Explain Architecture of JDBC with any three component in detail. (14)

Or

(I) Explain awt hierarchy in detail with any two listeners and its methods (14)

Q-3 B. Short Questions(Attempt Any three) (3)

1. For taking input from user in applet which tag is used?
2. What is value of () method?
3. List down ways if draw polygon shape.
4. Which are ways of creating frame in awt.
5. Set Mnemonic () is common method in how many controls.

Q-4 A **Write The Following.**
(I) Explain difference between AWT-SWING with any two swing controls. (14)

Or

(I) Explain FONT and COLOR class with any five methods of both. (14)

Q-4 B. Short Questions(Attempt Three) (3)

1. Which is common tool in awt and swing?
2. To display message on status bar which method is used?
3. JDBC stands for.....
4. MVC Stands for.....
5. Which method has called for display stage in applet?

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B.Sc. (Sem.-6) Examination

CC 308

Statistics

March 2019

[Max. Marks : 70]

Time : 2-30 Hours]

- Q. 1 (a) (i) State and prove Neyman Pearson Lemma. (7)
- (ii) If $f(x, \theta) = (1 + \theta)x^\theta$ $0 \leq x < 1$. To test $H_0: \theta=2$ against $H_1: \theta=1$ as a single value of x is taken. Find power function for the critical region $x \leq c$ (determine the value of c) and the size of type I error is 0.008. (7)

Or

- (i). Write a short note on (i) Type I and type II errors (ii) power function. (7)
- (ii) A coin is tossed 6 times and hypothesis $H_0: p=1/2$ is rejected against $H_1: p = 3/4$ if the number of head is greater than 4. Calculate probabilities of two types of errors. (7)
- Q. 1 (b) Answer any Four (4)
- (i) Explain characteristics of Null and alternative hypothesis.
- (ii) If the test is rejected for two tail then what can you say for one tail case of the same test and same level of significance.
- (iii) Show the critical region on normal probability curve at 5% level of significance when the alternative hypothesis is one tail.
- (iv) Define level of significance.
- (v) Explain critical region.
- (vi) What is the criterion for a test to be most powerful test.

- Q. 2. (i) Write a short note on Likelihood ratio test. (7)
- (ii) Explain LRT to test the significance difference of two population means when population SD is known. *for the case of normal distribution.* (7)

Or

- (i) Explain LRT to test significance of two population variances in normal population. (7)
- (ii) Explain LRT to test the significance of population mean when population SD is unknown. *in case of normal distribution.* (7)
- Q. 2(b) Attempt any Four. (4)
- (i) Define power of the test
- (ii) if the maximum likelihood ratio is equal to 1 then what can you say about null hypothesis?
- (iii) What is the critical value of Z_α for a two tail test at 5% level of significance?
- (iv) State the null and alternative hypothesis for testing the significance difference of two populations.
- (v) Name the test statistics you use to test the significance difference of two variances
- (vi) Explain BCR

- Q. 3 (a) (i) Discuss sign test (7)
- (ii) Discuss Median test (7)

OR

- (i) Write short note on Mann-Whitney U test (7)

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- (ii) Define Run and discuss Run test
- Q. 3 (b) Attempt any three
- (i) State any two application of non-parametric test.
- (ii) State the hypothesis to be tested in Mann-Whitney U test.
- (iii) Give at least one assumption of parametric test.
- (iv) Testing of goodness of fit: is it a parametric or Non Parametric test?
- (v) Name the tests you use in median test.

(7)
(3)

- Q. 4(a) (i) Give complete lay out of Randomized Block Design
- (ii) Give complete layout of LSD and give comparison of efficiency between RBD and LSD.

(7)
(7)

OR

- (i) What is partial confounding? Explain partial confounding in 2^3 factorial experiment.
- (ii) Show how will you estimate one missing observation in case of RBD? Give its analysis.
- (b) Attempt any Three
- (i) State any two merits of RBD over LSD
- (ii) Define level
- (iii) Define Factor in factorial design.
- (iv) Explain confounding.
- (v) Write the degrees of freedom for a 2^3 factorial design with 3 replicates.

(7)
(7)
(3)
(3)

~~—————~~

B.Sc. (Sem.-6) Examination**CC 308****Electronics****Time : 2-30 Hours]****March 2019****[Max. Marks : 70**

Note: All questions carry equal Marks

Symbols used have their meanings as usual

Q:1(a)(i) Explain 3-bit simultaneous A/D conversion technique giving its logic diagram. (7)

(ii) Explain Successive approximation technique of A/D Conversion. (7)

OR

(i) Define Resolution, Steady state accuracy test and monotonicity test in case Of D/A converter. (7)

(ii) For a 6 bit DAC having +10 V full scale output find Change in Output voltage due to change in LSB & The Output voltage for an input 010101 (7)

Q:1(b) Answer following short questions in One sentence (any 4 from 6) (4)

1. Is a single ramp A/D converter slower or faster than successive approximation A/D converter ?

2. What is a Linearity?

3. What does SAR stand for in A/D conversion technique?

4. What is resolution of 8 bit DAC?

5. What is the LSB weight of 6 bit resistive ladder?

6. What is the greatest weakness of a single ramp A/D converter ?

Q:2(a) (i) Show how will you calculate time delay using one register technique. (7)

(ii) Show how will you calculate time delay using loop within loop technique. (7)

OR

(i) Write a program to count continuously in hexa decimal from FEH to 00H in a system with 0.5 micro second clock period. Use register C to set up one millisecond (ms) delay between each count and display the numbers at one of the output ports. (7)

(ii) Write a program to generate a continuous square wave with the period of 500 μ sec. Assume the system clock period is 325 nsec. Use bit D_0 to output the Square Wave. (7)

Q:2(b) Answer following short questions in One sentence (any 4 from 6) (4)

1. What is the control word?

2. What is full form of BSR?

3. Which two modes does 8255A operate into?

4. How does a parallel counter differ from a serial counter?

5. Why decoding gate glitches eliminated in a synchronous counter?

6. What modulus counter can be constructed with the use of 4 flip flops?

Q:3 (a) (i) What is a Stack ? Explain giving examples PUSH and POP Instructions. (7)

(ii) Write a program to provide on/off time to three traffic lights (7)

(Green, Yellow and Red and two Pedestrian signs (Walk and Don't Walk).

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Continued...

Signal Lights and Signs are turned on/off by the data bits of an output port as shown below.

Lights	Data Bits	On Time
1.Green	D ₀	15 Sec.
2.Yellow	D ₂	5 Sec.
3.Red	D ₄	20 Sec.
4.walk	D ₆	15 Sec.
5.Don't Walk	D ₇	25 Sec.

The traffic and pedestrian flow are in same direction: The pedestrian should cross the road when Green light is on.

OR

- (i) Explain the execution of the following CALL 2070 Instruction (7)
- 2040 CD
2041 70
2042 20
2043 NEXT INSTRUCTION

- (ii) Explain about conditional CALL and RET instructions. (7)

- 3 (b) Answer following short questions in One sentence (any 3 from 5) (3)

- 1.What principle does a stack work on LIFO or FIFO?
- 2.What is a Stack Pointer?
- 3.What the execution of POP PSW will result into?
4. What the execution of PUSH B will result into?
- 5.What the execution of instruction LXI SP,2099H will do?

- Q:4 (a)(i) Explain control logic and Control word of 8255A General Purpose programmable Peripheral Device. (7)

- (ii) DAC 0808 with 8085 microprocessor, write assembly language program to generate a Saw tooth wave form. Assume DAC 0808 is connected at port 21H (7)

OR

- (i) Explain 8255A Ports and their modes. (7)

- (ii) Give diagram of 8255A Chip select logic and I/O port addresses. (7)

- Q:4 (b) Answer following short questions in One sentence (any 3 from 5) (3)

- 1.List the operating modes of 8255A Programmable Peripheral Interface?
- 2.What is the control word?
- 3.What is full form of BSR?
- 4.Specify the Handshake signals and their functions if Port A of 8255A is set up as an output port in Mode 1.
- 5.Specify the bit of control word for the 8255, which differentiates between the I/O mode and the BSR mode.

B.Sc. (Sem.-6) Examination

CC 308

Health Hygiene

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

HTH-308 Medical Instruments

Que-1 (A) Explain principle, and procedure of Cryosurgery and Vital sign monitor. [14]

OR

1. Write purpose, procedure & principle of Lithotripsy. [7]
2. Explain the purpose and procedure of Angiography. [7]

(B) Answer any Four of the following in brief [4]

1. Explain the principle of Laparoscope.
2. Write the usage of Heart lung machine.
3. What is the use of vaporizer in Anaesthesia machine?
4. Surgical laser system also called _____.
5. What is general anaesthesia?
6. Write the use of electrotony.

Que-2 (A) Write principle, procedure and applications of X-ray screening photography. [14]

OR

1. Explain the principle, purpose & procedure of CT scan. [7]
2. Describe the indications, preparation & procedure of Barium meal study. [7]

(B) Answer any Four of the following in brief [4]

1. Write the principle of Doppler.
2. Which things are prohibited in MRI room and why?
3. PET scan is used to detect cancer. (True/False)
4. Define tomographic angle.
5. Device that convert electrical signal in to sound waves is called _____.
6. Write any two types of Echocardiography.

Que-3 (A) Explain principle and uses of Cystoscopy and Ophthalmoscopy. [14]

OR

1. Describe Elecroretinography technique. [7]
2. Write detailed note on Tread Mill Test. [7]

(B) Answer any Three of the following in brief [3]

1. Write principle of EOG.
2. What is Diastolic blood pressure?
3. Refractometry is preformed to measure electrical activity in parts of brain (True/False)
4. In which condition tonometry is recommended?
5. Write the principle of Perimetry.

Que-4 (A) Explain the principle and working of Neonatal incubator. [14]

OR

1. Describe working and application of Dialyzer. [7]
2. Describe the types and procedure of Radiation therapy in detail. [7]

(B) Answer any Three of the following in brief [3]

1. Pad type of electrode of defibrillator placed on _____.
2. What is the recommended frequency for Electric shock?
3. Write the principle of Defibrillator.
4. Electric shock treatment is used to treat heart disease (True/False)
5. What is neonatal jaundice?

B.Sc. (Sem.-6) Examination

309

Geology

March 2019

[Max. Marks : 70]

Time : 2-30 Hours]

- પ્ર. ૧ (અ) સ્વરછ આકૃતિની મદદથી કીરામિનિકેરા અને રેડિયોલેરિયા ગણનું વર્ણન કરો. 18
અથવા
 (અ) (i) અલસાયોનેરીયા ઉપવર્ગ. 09
 (ii) પ્રવાળની આકારવિધાકીય લાક્ષણિકતાઓ. 09
 (બ) નીચેના ટૂંકા પ્રશ્નોના જવાબ આપો. (છ માંથી કોઈપણ ચાર) 08
 (i) બીબાડોઝ જમીનની વ્યાખ્યા આપો.
 (ii) કીરામિનિકેરાના મહત્વના બે અશ્મિના નામ આપો.
 (iii) રેડિયોલેરિયાનો ભૂસ્તરીય સમયગાળો લખો.
 (iv) સંપૂર્ણ પરવાળાની વસાહતના હાડપિંજરને શેના તરીકે ઓળખવામાં આવે છે?
 (v) રુગોસા ઉપવર્ગમાં સમાવિષ્ટ બે અશ્મિના નામ આપો.
 (vi) કીસ્યુલાની વ્યાખ્યા આપો.
- પ્ર. ૨ (અ) ત્રિખંડીની આકારવિધાકીય લાક્ષણિકતાઓ સમજાવો. 18
અથવા
 (અ) (i) હેમીકોર્ડાટા અને સંધિપાદ સમુદાયનું ભૂસ્તરીય વિતરણ. 09
 (ii) ગ્રેપ્ટોલાઇટની આકારવિધાકીય લાક્ષણિકતાઓ. 09
 (બ) નીચેના ટૂંકા પ્રશ્નોના જવાબ આપો. (છ માંથી કોઈપણ ચાર) 08
 (i) અપૃષ્ઠવંશી અશ્મિશાસ્ત્રના કોઈપણ બે પુસ્તકોના નામ આપો.
 (ii) કેફ્સાની પડદા એટલે શું?
 (iii) નામપટ્ટી સહિત મોનોગ્રેપ્ટસની આકૃતિ દોરો.
 (iv) હેમીકોર્ડાટાને વર્ગીકૃત કરનાર વ્યક્તિનું નામ આપો.
 (v) ત્રિખંડીના મહત્વના બે અશ્મિના નામ આપો.
 (vi) ફલક્રમની વ્યાખ્યા આપો.
- પ્ર. ૩ (અ) શૂળત્વચી સમુદાયનું વર્ગીકરણ આપો અને તેની આકારવિધાકીય લાક્ષણિકતાઓનું વર્ણન કરો. 18
અથવા
 (અ) (i) બેક્રિયોપોડ અને ક્રિનોઇડીયાનું ભૂસ્તરીય વિતરણ. 09
 (ii) બેક્રિયોપોડ અશ્મિ કવચ. 09
 (બ) નીચેના ટૂંકા પ્રશ્નોના જવાબ આપો. (પાંચ માંથી કોઈપણ ત્રણ) 03
 (i) લટ એટલે શું?
 (ii) તમે સમાન અને અસમાન શૂળત્વચીને કેવી રીતે અલગ તારવશો?
 (iii) દાંડી છિદ્રની વ્યાખ્યા આપો.
 (iv) ચીરાની તક્તીની વ્યાખ્યા આપો.
 (v) મામેલન અને બોશની વ્યાખ્યા આપો.
- પ્ર. ૪ (અ) અશ્મિવિજ્ઞાનના પુનઃનિર્માણમાં મોટાજીવાવશેષો કરતા સૂક્ષ્મજીવાવશેષ અભ્યાસના ફાયદાઓ સમજાવો. 18
અથવા
 (અ) (i) ભૂસ્તરીય સમય પ્રમાણે પૃષ્ઠવંશીઓની ઉત્ક્રાંતિ. 09
 (ii) ઉરગ સમુદાયનો ઉદભવ અને પતન. 09
 (બ) નીચેના ટૂંકા પ્રશ્નોના જવાબ આપો. (પાંચ માંથી કોઈપણ ત્રણ) 03
 (i) વિહંગની બે લાક્ષણિકતાઓનો ઉલ્લેખ કરો.
 (ii) કયા ઉરગોએ ઊડવાનું અપનાવ્યું?
 (iii) ઉભયજીવીની બે લાક્ષણિકતાઓ લખો.
 (iv) સૂક્ષ્મજીવાવશેષશાસ્ત્રની વ્યાખ્યા આપો.
 (v) મુખ્ય વર્ગીકરણના વર્ગ દર્શાવો.

- Q-1 (A) With the help of neat figure describe Foraminifera and Radiolaria order. 14
- OR
- (A) (i) Sub-class Alcyonaria. 07
(ii) Morphological characters of Corals. 07
- (B) **Answer the following short questions.** (Any four out of six) 04
(i) Define Barbados Earth.
(ii) Name two important fossils of foraminifera.
(iii) Write geological time range of Radiolaria.
(iv) What is called to the skeleton of an entire coral colony?
(v) Give two name of the fossil included in sub class Rugosa.
(vi) Define fossula.
- Q-2 (A) Explain morphological characters of Trilobita. 14
- OR
- (A) (i) Geological distribution of phylum Hemichordata and Arthropoda. 07
(ii) Morphological charecters of a Graptolite. 07
- (B) **Answer the following short questions.** (Any four out of six) 04
(i) Name any two books on invertebrate palaeontology.
(ii) What are pleurae?
(iii) Draw a labelled figure of Monograptus.
(iv) Name the person who classified Hemichordata.
(v) Name two important fossils of trilobita.
(vi) Define fulcrum.
- Q-3 (A) Give classification of the phylum Echinodermata and describe its morphological charecters. 14
- OR
- (A) (i) Geological distribution of Crinoidea and Brachiopoda. 07
(ii) Brachiopod fossil shell. 07
- (B) **Answer the following short questions.** (Any three out of five) 03
(i) What is cirri?
(ii) How will you differentiate between Regular and Irregular echinoid?
(iii) Define pedicle opening.
(iv) Define deltidium.
(v) Define mamelon and boss.
- Q-4 (A) Explain the advantages of study of microfossils over megafossil in paleontological reconstruction. 14
- OR
- (A) (i) Evolution of vertebrates as per geological time scale. 07
(ii) The rise and fall of reptile groups. 07
- (B) **Answer the following short questions.** (Any three out of five) 03
(i) Mention two Characteristics of aves.
(ii) Which reptiles adapted them for flight?
(iii) Write two Characteristics of amphibians.
(iv) Define micropalaeontology.
(v) Provide main taxonomic categories.

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2303N396

Candidate's Seat No : _____

B.Sc. (Sem.-6) Examination

CC 309

Computer Science

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

-
- Q-1 A Write The Following.**
(I) Explain History of mobile software development and Explain life cycle of Activity. (14)

Or

- (I)** What is layout Explain all layouts with example. And Explain Anatomy of android application. (14)

- Q-1 B. Short Questions(Attempt Four) (4)**

1. What is Adapter?
2. Full form of SDK.
3. Full form of DVM.
4. Full form of APIs.
5. What Is Context.
6. What is Services.

- Q-2 A Write The Following.**
(I) Explain Android Manifest file and its common settings and Explain Broadcast intent and broadcast receiver. (14)

Or

- (I)** What is Animation? Explain types of animation ? Explain drawing and working with animation. (14)

P.T.O

N 396-2

Q-2 B. Short Questions(Attempt Four)

(4)

- 1) What method you should override to use android menu system?
A. onCreateOptionsMenu() B.onCreateMenu() C. onCreateOptionsMenu()
D. onCreateContextMenu

- 2) Explain android activity life cycle?

A. onCreate() -> onStart() -> onActivityCreated() -> onResume() -> onPause() -> onStop() -> onDestroy()

B. onCreate() -> onStart() -> onResume() -> onPause() -> onStop() -> onRestart() -> onDestroy()

C. onCreate() -> onStart() -> onPause() -> onResume() -> onStop() -> onDestroy()

D. ->onResume()

- 3) Broadcast that includes information about battery state, level, etc. is

A. android.intent.action.BATTERY_CHANGED

B. android.intent.action.BATTERY_LOW

C. android.intent.action.BATTERY_OKAY

D. android.intent.action.CALL_BUTTON

- 4) One of application component, that manages application's background services is called

A. Activities B. Broadcast Receivers C. Services

D. Content Providers

- 5) Tab that can be used to do any task that can be done from DOS window is

A. TODO B. message C. terminal D. comments

- 6) Android component that controls external elements of file is called

A. Intent B. resource C. view D. manifest

Q-3 A Write The Following.

- (I) Explain Content provider.? Content URIs with example and explain deploying your application.

(14)

N 396-3

Or

(I) Explain Different Types of resources and Explain Android terminologies. (14)

Q-3 B. Short Questions(Attempt Any three) (3)

1) In android, compiled code is executed by part of android system called

A. DEX B. DVM C. JDK D. API

2) A part of android studio, that work as a simulator for android devices is called

A. Driver B. emulator C. stub D. firmware

3) Code that provide easy way to use all android features is called

A. API B. DEX C. DVM D. JDK

4) Android content provider architecture, component that does not resides on data layer is

A. Internet B. SQLite C. Files D. content provider

5) In android studio, each new activity created must be defined in

A. res/layout B. res/values C. Build.gradle
D. AndroidManifest.xml

Q-4 A Write The Following.

(I) Explain Intent filters and their permission and explain Listview. (14)

Or

(I) Explain types of menu and explain SQLite database.

(14)

P.T.O

N 396-4

Q-4 B. Short Questions(Attempt Three)

(3)

1. What is Intent.
2. What is Bin folder.
3. What is Spinner.
4. What is listview.
5. What is time picker?

— X —

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2303N397

Candidate's Seat No : _____

B.Sc. (Sem.-6) Examination

309

Statistics

March 2019

[Max. Marks : 70

Time : 2-30 Hours]

Q-1(A) Write the following.

(i) What is control chart? Explain the basic principles underlying the control charts. Discuss the role of control charts in manufacturing processes. 07

(ii) What do you understand by Statistical Quality Control? Discuss briefly its need and utility in industry. 07

OR

(i) Explain the concept of 3σ -limits in detail. 07

(ii) Write a brief note on 'Criterion for detecting lack of control'. 07

Q-1(B) Answer the following questions. (Any four) 04

(i) When a process is said to be out of control?

(ii) Define 'High spot' and 'Low spot' points.

(iii) Write any two applications of Statistical Quality Control in real life situation.

(iv) State any two limitations of control charts for variables.

(v) When control charts for attributes are used?

(vi) What is the probability that seven consecutive points fall on upper side of central line?

Q-2(A) Write the following.

(i) Discuss \bar{X} and R charts. What are their advantages over the p chart? 07

(ii) Obtain control limits for p and np charts. 07

OR

(i) Write a short note on S-chart and its interpretation. 07

(ii) Write a short note on u-chart and its interpretation. 07

Q-2(B) Answer the following questions. (Any four) 04

(i) Write the theoretical assumptions behind the control chart for variables.

(ii) Write the name of control chart for number of defects.

(iii) Write any two applications of C-chart.

(iv) Why np-chart is preferred to p-chart?

(v) What are modified control limits?

(vi) Interpret the sample points that fall below the LCL on p-chart.

N 397-2

Q-3(A) Write the following.

- (i) Explain and derive O.C. function of \bar{X} -chart. 07
- (ii) What do you understand by acceptance sampling procedure? State its uses by giving proper illustrations. 07

OR

- (i) Explain the following terms for single sampling plan for attributes: 07
 - (a) AQL and LTPD
 - (b) Producer's risk and consumer's risk
- (ii) Explain in detail double sampling for attributes. 07

Q-3(B) Answer the following questions. (Any three) 03

- (i) What is the basic problem in administering a single sampling plan?
- (ii) Usually in the most economical single sampling plan, which quantity is minimizing?
- (iii) How the most economical double sampling plans are obtained?
- (iv) Write merits of double sampling plan over single sampling plan.
- (v) Write any two applications of a single sampling plan.

Q-4(A) Write the following.

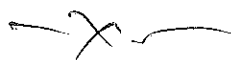
- (i) Discuss the advantages and disadvantages of sampling inspection plans for variables compare to sampling inspection plans for attributes. 07
- (ii) Derive sampling inspection plan for variables when lower specification limit and lot standard deviation both are known. 07

OR

- (i) Derive sampling inspection plan for variables when upper specification limit is known and lot standard deviation is unknown. 07
- (ii) Discuss the advantages and disadvantages of sampling inspection plans for variables compare to sampling inspection plans for attributes. 07

Q-4(B) Answer the following questions. (Any three) 03

- (i) When Sampling Inspection plan for variables is used?
- (ii) Write the assumptions of Sampling Inspection plan for variables.
- (iii) Define Lower Specification limit with reference to Sampling Inspection plan for variables.
- (iv) What are the parameters of Sampling Inspection plan for variables?
- (v) In the normal circumstances, how many % of observations lie within $\bar{x} \pm 3\sigma$?



Time : 2-30 Hours]

- 1/103
- 1 (A) Write the following
- Explain Reflection, Diffused Reflection and Refraction with diagrams. 07
 - With equation and diagram explain Snell's Law. Calculate critical angle of incidence between two substances with different refractive indices where $n_1 = 2$ & $n_2 = 1$. 07
- OR
- Explain light scattering, critical angle and Fresnel reflection in detail with diagrams. 07
 - Explain dispersion and diffraction in detail with diagram. 07
- (B) Answer the following (Any Four out of Six) 04
- A single fiber can handle as many voice channels as a _____ pair cable can.
 - Refractive index can be stated as $n =$ _____.
 - _____ is the bending of light as it passes through an opening in an obstacle.
 - Energy in a photon can be calculated by equation $E =$ _____.
 - Fiber is immune to interference from lightning, cross talk, and _____ radiation.
 - If the substance emits light of a wavelength longer than that of the incident light, this is called _____.
- 2 (A) Write the following
- With diagram explain Tuned Radio-Frequency Receiver. 07
 - Explain operation of diode detector and principles of simple automatic gain control. 07
- OR
- With diagram explain working of Superheterodyne Receiver. 07
 - How is the IF selected? Draw the circuit of a two-stage IF amplifier and explain it. 07
- (B) Answer the following (Any Four out of Six) 04
- The sensitivity of a radio receiver is its ability to amplify _____ signals.
 - The selectivity of a receiver is its ability to reject _____ signals.
 - The image frequency is defined as signal frequency plus twice the _____ frequency.
 - Conversion transconductance is defined as $g_c =$ _____.
 - A high value of intermediate frequency increases _____ difficulties.
 - Modulation index in demodulated wave is defined as $m_d =$ _____.
- 3 (A) Write the following
- Draw block diagram simplified monochrome TV transmitter. Explain Camera tubes. 07
 - With the help of waveforms explain horizontal & vertical sync separation. 07
- OR
- With diagram explain horizontal and vertical scanning of TV system. 07
 - Explain VHF/UHF television tuner with detailed block diagram. 07
- (B) Answer the following (Any Three out of Five) 03
- There are _____ frames per second in the U.S. television system.
 - Three guns of picture tube is called _____.
 - Give full form of NTSC.
 - Difference between the blanking level & black level is known as the _____ interval.
 - _____ tuners often use a turret principle.
- 4 (A) Write the following
- Explain Distortion and Equalizers in data transmission circuits. 07
 - Explain Constant-Ratio Codes and Redundant Codes in detail. 07
- OR
- Discuss the difference between analog and digital signals. 07
 - Write a short note on the bandwidth requirements of a data transmission circuit. 07
- (B) Answer the following (Any Three out of Five) 03
- A way to reduce crosstalk is to use _____ cables.
 - Baudot code is a _____ bit code used in telegraphy and paper-tape systems.
 - Give full form of ASCII.
 - EBCDIC is also based on the _____ coded decimal format.
 - Parity bits added to each character block provide what is called _____ parity.
- X —



B.Sc. (Sem.-6) Examination

309

Health Hygiene

March 2019

[Max. Marks : 70]

Time : 2-30 Hours]

Que-1 (A) Define Antibiotic and explain Mode of action types of antimicrobial drugs in detail [14]
OR

1. Discuss method for Bioassay of antibiotics [7]
2. Write note on historical developments in Chemotherapy [7]

(B) Answer any Four in brief [4]

1. What is the function of R-plasmid?
2. Give one advantage of Bioassay over Chemical assay
3. Name two Anti-cancer drugs
4. What kind of drug is Cyclosporin?
5. What is MIC?
6. List contribution of Paul Ehrlich (1908) in chemotherapy

Que-2 (A) Explain history of Physiotherapy and discuss physiotherapy in Cardiovascular problem [14]
OR

1. Explain use of Physiotherapy in Orthopaedic problems [7]
2. Explain common Aerobic exercises [7]

(B) Answer any Four in brief [4]

1. What is Arthritis?
2. How physiotherapy help controlling Asthma?
3. What is muscle stretching exercise?
4. When is Rehabilitation type of physiotherapy recommended to sports person?
5. How joint mobilization relieves stiffen joints?
6. What physiotherapy useful for in treatment of Sciatica?

Que-3 (A) Define stem cells. Discuss sources and therapeutic uses of stem cells in detail. [14]
OR

1. List various hormone factor and explain any one disorder requiring hormonal therapy. [7]
2. Summarize Artificial insemination and in-vitro fertilization technique [7]

(B) Answer any Three in brief [3]

1. Which blood group can be donated to B-positive recipient?
2. How Oligonucleotides are used in gene therapy?
3. Give one area of nanotechnology use in modern drug therapy
4. Which body part is replaced by IOL?
5. Which material is used to make surgical suture?

Que-4 (A) Describe various treatment available to treat psychological disorders [14]
OR

1. Write note on Counselling and Care needed under psychological illnesses [7]
2. List symptoms to identify Stress and discuss stress buster approaches [7]

(B) Answer any Three in brief [3]

1. What is Euthanasia?
2. What is Tranquilizer?
3. Name two sedative type of drugs
4. What is Psychoanalysis?
5. What is Schizophrenia?



B.Sc. (Sem.-6) Examination

CC 310

Geology

March 2019

[Max. Marks : 70]

Time : 2-30 Hours]

- પ્ર. ૧ (અ) ભૂરાસાયણિક, ભૂસ્તરીય અને ભૂભૌતિક સર્વેક્ષણ પદ્ધતિઓ, તેના ઉપયોગો સાથે વર્ણન કરો. ૧૪
- અથવા
- (અ) (i) નમુના એકઠીકરણની પદ્ધતિઓ. ૦૯
(ii) સ્થળવર્ણન અને ભૂસ્તરીય નકશાઓ. ૦૯
- (બ) નીચેના ટૂંકા પ્રશ્નોના જવાબ આપો. (છ માંથી કોઈપણ ચાર) ૦૪
- (i) પૃથ્વી સપાટીની રેખાકૃતિની વ્યાખ્યા આપો.
(ii) વિવૃત નકશાઓ એટલે શું?
(iii) સંરચનાત્મક સમીચ્યવૃતની વ્યાખ્યા આપો.
(iv) સંશોધનની વ્યાખ્યા આપો.
(v) ભૂકંપીય પદ્ધતિનો સિદ્ધાંત આપો.
(vi) રેઝીસ્ટીવીટી મીટરના બે ઉપયોગો લખો.
- પ્ર. ૨ (અ) કુદરતી ભૂઆપત્તિના કારણો અને માનવસર્જીત ભૂઆપત્તિના ઉપાયો સમજાવો. ૧૪
- અથવા
- (અ) (i) ભૂસ્ખલનની પર્યાવરણીય અસરો. ૦૯
(ii) જ્વાળામુખીની પર્યાવરણીય અસરો. ૦૯
- (બ) નીચેના ટૂંકા પ્રશ્નોના જવાબ આપો. (છ માંથી કોઈપણ ચાર) ૦૪
- (i) પર્યાવરણીય ભૂસ્તરશાસ્ત્રની કોઈપણ બે પુસ્તકોના નામ આપો.
(ii) ભૂકંપીય વિભાગીકરણ એટલે શું?
(iii) ભૂકંપની બે પર્યાવરણીય અસરોના નામ આપો.
(iv) બે કુદરતી આપત્તિના નામ આપો.
(v) પુરની બે પર્યાવરણીય અસરોના નામ આપો.
(vi) હિમપ્રપાતની વ્યાખ્યા આપો.
- પ્ર. ૩ (અ) ભારતના ભૂપૃષ્ઠરચનાત્મક લક્ષણો અને મુખ્ય ભૂમિઆકારો વિષે નોંધ લખો. ૧૪
- અથવા
- (અ) (i) ભૂપૃષ્ઠરચનાશાસ્ત્રના નિર્દેશકો. ૦૯
(ii) યોગ્ય નકશા સાથે ભારતના સક્રિય સ્તરભંગો. ૦૯
- (બ) નીચેના ટૂંકા પ્રશ્નોના જવાબ આપો. (પાંચ માંથી કોઈપણ ત્રણ) ૦૩
- (i) નામપટ્ટી સહિત વૃક્ષસમ જળપ્રવાહ પ્રણાલીની આકૃતિ દોરો.
(ii) હિમનદીના ઘસારા દ્વારા ઉદભવતા બે ભૂમિઆકારોના નામ આપો..
(iii) પુનરાવર્તિત ભૂકંપીયતાની વ્યાખ્યા આપો.
(iv) ગુજરાતના બે સક્રિય સ્તરભંગના ઉદાહરણ આપો.
(v) ભૂપૃષ્ઠરચનાશાસ્ત્રની વ્યાખ્યા આપો.
- પ્ર. ૪ (અ) પ્રાચીન ચુંબકત્વ સમજાવો. ૧૪
- અથવા
- (અ) (i) મધ્યસાગરીય ડુંગરધારો. ૦૯
(ii) ટાપુ ક્ષમાનો. ૦૯
- (બ) નીચેના ટૂંકા પ્રશ્નોના જવાબ આપો. (પાંચ માંથી કોઈપણ ત્રણ) ૦૩
- (i) ચુંબકીય ફેરબદલીની વ્યાખ્યા આપો.
(ii) સમુદ્રતળ વિસ્તરણના અગ્રણી કાર્યકર્તાના નામ આપો.
(iii) The Prince Edward Crozet Ridge ક્યાં આવેલી છે?
(iv) ગ્રેનાઈટ સ્તરના મોટા વિસ્તારો ધરાવતી મધ્યસાગરીય ડુંગરધારો કઈ છે?
(v) સૌથી મોટી અને માત્રવિવૃતી ધરાવતી મહાસાગર ડુંગરધારનું નામ આપો.

- Q-1 (A) Describe geochemical, geological and geophysical prospecting with their applications. 14
- OR
- (A) (i) Methods of Sampling. 07
(ii) Topographical and geological maps. 07
- (B) Answer the following short questions. (Any four out of six) 04
- (i) Define profile of the earth surface.
(ii) What are outcrop maps?
(iii) Define structural outcrop map.
(iv) Define exploration.
(v) Give the principle of seismic method.
(vi) Write two uses of resistivity meter.
- Q-2 (A) Explain causes of natural geohazards and remedies for man-made geohazards. 14
- OR
- (A) (i) Environmental implications of landslides. 07
(ii) Environmental implications of volcano. 07
- (B) Answer the following short questions. (Any four out of six) 04
- (i) Name any two books on Environmental Geology.
(ii) What is seismic zonation?
(iii) Name two environmental implication of an earthquake.
(iv) Name two natural hazards.
(v) Mention two environmental implications of flood.
(vi) Define avalanche.
- Q-3 (A) Write note on geomorphic features of India and major landforms. 14
- OR
- (A) (i) Geomorphological indicators. 07
(ii) Active faults of India with suitable map. 07
- (B) Answer the following short questions. (Any three out of five) 03
- (i) Draw a labelled figure of dendritic drainage pattern.
(ii) Name the two land forms produced by glacial erosion.
(iii) Define recurrent seismicity.
(iv) Give two examples of active fault of Gujarat.
(v) Define geomorphology.
- Q-4 (A) Explain palaeomagnetism. 14
- OR
- (A) (i) Mid oceanic ridges. 07
(ii) Island arcs. 07
- (B) Answer the following short questions. (Any three out of five) 03
- (i) Define magnetic reversal.
(ii) Name the pioneer workers in sea floor spreading.
(iii) Where The Prince Edward Crozet Ridge is situated?
(iv) Which mid oceanic ridge contains large regions of granitic layer?
(v) Name the largest and the only outcrop of an oceanic ridge.

B.Sc. (Sem.-6) Examination

CC 310

Computer Science

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

Q-1(A) Write the following:

(i) Explain evolution of operating system in detail with suitable diagrams. [7]

(ii) Define operating system. Explain the different views of operating system. Also explain types of operating system. [7]

OR

(i) Explain Contiguous and Non Contiguous memory allocation. [7]

(ii) Explain Disk space management in details. [7]

Q-1(B) Write the following (Any Four out of Six) [4]

(i) What is an Operating System?

(ii) Which one is not Operating System?

(a) DOS (b) LINUX (c) Windows (d) ORACLE

(iii) What is Process?

(iv) _____ is layer of computer system between the hardware and the user program.

(a) Operating environment (b) Operating system (c) System environment (d) None of these

(v) What is Device Management?

(vi) What is Cache Memory?

Q-2(A) Write the following:

(i) Explain Paging in details. [7]

(ii) Explain PCB and Process Life Cycle. [7]

OR

(i) Explain need of OS and characteristic of Device. [7]

(ii) Explain Fragmentation in detail with suitable diagrams. [7]

Q-2(B) Write the following (Any Four out of Six) [4]

(i) Briefly explain FCFS.

(ii) What is caching?

(iii) Thrashing

(a) is a natural consequence of virtual memory systems

(b) can always be avoided by swapping

(c) always occurs on large computers

(d) can be caused by poor paging algorithms

N416-2

(iv) What is the name of the technique in which the operating system of a computer executes several programs concurrently by switching back and forth between them?

- (a) Partitioning (b) Multitasking (c) Paging (d) None of the above

(v) What is Multitasking?

(vi) What is page fault?

Q-3(A) Write the following:

- (i) Explain Disk Scheduling Algorithm with their methods. [7]
(ii) Explain Demand Paging in details. [7]

OR

- (i) What is deadlock? List the conditions that lead to deadlock. How deadlock can be prevented? [7]
(ii) Explain Segmentation in detail with suitable diagrams. [7]

Q-3(B) Write the following (Any Three out of Five) [3]

- (i) Which is Mutual Exclusion?
(ii) What is batch OS?
(iii) A page fault
(a) is an error in a specific page
(b) occurs when a program accesses a page of memory
(c) is an access to a page not currently in memory
(d) is a reference to a page belonging to another program

(iv) What is SJF?

(v) What is SSTF?

Q-4(A) Write the following:

- (i) Explain Inter process communication in details. [7]
(ii) What do you understand by LA & PA explain in briefly. [7]

OR

- (i) Explain Scheduling Algorithm. [7]
(ii) Explain types of scheduler and criteria of scheduling. [7]

Q-4(B) Write the following (Any Three out of Five) [3]

- (i) What is Scheduling?
(ii) What is difference between a Producer/Consumer Problem and Critical Section Problem?
(iii) What is Virtual Memory?
(iv) What is the use of Inter process communication?
(v) What is Internal Fragmentation?

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B.Sc. (Sem.-6) Examination
CC 310
Statistics

Time : 2-30 Hours]

March 2019

[Max. Marks : 70

Q. 1 (a) (i) write the steps of Siplax algorithm. 07

(ii) Solve the following LPP using Big M method 07

Max: $Z = 3x_1 - x_2$ Subject to $2x_1 + x_2 \geq 4$; $x_1 + 3x_2 \leq 3$; $x_2 \leq 6$; $x_1 \geq 0$; $x_2 \geq 0$.

Or

(i) Suppose that the set ^{S_f} of feasible solutions to the given LPP is not empty then the basic 07
feasible solution to the LPP lies at the vartex of the convex poly hedron(ii) A firm can produce three types of cloth, say A, B, and C. Three kind of wool are required for 07
it, say: red, green, and blue wool. One unit length of type A cloth needs 2 meter of red wool
and 3 meter of blue wool; One unit length of type B cloth needs 3 meter of red wool, 2 meter
of green wool and 2 meter of blue wool; and one unit of type C cloth needs 5 meter of green
wool and 4 meter of blue wool. The firm has only a stock of 8 meters of red wool, 10 meters
of green wool and 15 meter of blue wool. The profit for cloth A, B and C are Rs.3, Rs. 5 and
Rs. 4 respectively. Formulate the problem as LPP to maximize profit (Give formulation
only). 04

Q. 1(b) Answer any four.

(i) Write standard form of LPP.

(ii) Define artificial variable.

(iii) Explain slack and surplus variable.

(iv) Define basic feasible solution

(v) In simplex method explain the indication of infeasible solution.

(vi) In simplex method explain the situation of unbounded solution.

Q. 2. (a) (i) Name the different methods to obtain a basic feasible solution in Transportation problem. 07
Show that Transportation problem has a triangular basis.(ii) Among all the method of obtaining initial basic feasible solution VAM is best method. Why? 07
Write the steps of VAM method, and explain MODI method.

Or

(i) Write the algorithm for Hungarian method to solve Assignment problem. How will you deal 07
with unbalanced Assignment problem?

(ii) Solve the following Transportation problem 07

	Desrination				Capacity
	D1	D2	D3	D4	
O1	15	12	6	10	300
O2	17	18	10	13	400
O3	19	14	19	12	300
Demand	200	300	450	250	

N417-2

Q. 2 (b). Answer Any four.

- (1) What is the contribution of dual variables in transportation problem?
- (2) Define loop in transportation problem
- (3) why can't we solve assignment problem by using the methods of solving transportation problem?
- (4) How will you deal with unbalanced assignment problem?
- (5) what is the condition for the existence of optimum solution for the transportation problem.
- (6) In assignment problem when can we say that the optimum stage is reached?

Q. 3 (a) (i) Explain replacement problem discuss various stages of replacement.

(ii) explain Replacement model for items which deteriorate with time under increase in maintenance costs increases with time while value of money remains same during the period under considerations when time is continuous random variable.

OR

- (i) Discuss the problem of sequencing
- (ii) Discuss the sequencing problem of processing n jobs through k machines.

Q. 3 (b) Attempt any three

- (i) give two examples of complete failure
- (ii) Give two examples of gradual failure.
- (iii) Give two assumptions of job sequencing
- (iv) When replacement is justified?
- (v) Define processing time.

Q. 4 (a) (i) Discuss three phases of a large project (i) Planning (ii) Scheduling and (iii) Control.

(ii) A project has the following time schedule

Activity	Time in Weeks	Activity	Time in Weeks
1-2	4	5-7	8
1-3	1	6-8	1
2-4	1	7-8	2
3-4	1	8-9	1
3-5	6	8-10	8
4-9	5	9-10	7
5-6	4		

Construct PERT network and compute:

- (1) EST and LST for each event
- (2) Float for each activity
- (3) Critical path and duration.

N417-3

OR

- (i) Discuss about PERT and CPM along with its uses.
(ii) A project has the following characteristics

07
07

Activity	Most optimistic time	Most Passimistic time	Most likely time
1-2	1	5	1.5
2-3	1	3	2
2-4	1	5	3
3-5	3	5	4
4-5	2	4	3
4-6	3	7	5
5-7	4	6	5
6-7	6	8	7
7-8	2	6	4
7-9	5	8	6
8-10	1	3	2
9-10	3	7	3

Construct a pert network. Find critical path and variance for each event.

Q 4 (b) Attempt any three

- (i) Give full form of PERT and CPM
(ii) Define Activity
(iii) Define Dummy Activity
(iv) Explain dangling and looping in drawing network.
(v) Define critical path.

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x ————— x

B.Sc. (Sem.-6) Examination

ECE 310

Electronics

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

Instruction : (1) Figures to right indicates full marks.
(2) All questions is compulsory.

- 1 (a) Answer the following :
- (a) What is strain gage? Define gage factor. Drive the equation for gage factor in terms of poisson's ratio. 7
- (b) Write displacement transducer. Explain capacitive transducer in details. 7
- OR**
- (a) Name the different types of photosensitive devies. Explain working of Photomultiplies. 7
with anecessary diagram.
- (b) Explain piezoelctric transducer. Write advantages and disadvantages of piezoelectric transducer. 7
- (b) Answer in brief any four : 4
- (i) What is RTD?
- (ii) What is LVDT?
- (iii) Write basic difference between active and passive transducer
- (iv) Define transducer
- (v) Write force summing devices
- (vi) What is seeback voltage?
- 2 (a) (a) Explain Amplitude and phase spectra. Sketch the single and double sided amplitude and phase speatra of the singlar. $x(f) = 4 \sin(10\pi t - \pi_0) - \alpha < t > \alpha$ 7
- (b) Classify the system. Explain state and dynamic, linear and nonlinear system. 7
Determine whether the system described by differential equation.
- $$\frac{dy(t)}{dt} + y(t) + 6 = x(t)$$
- is linear?
- OR**
- (a) Write linerity property of Z transform Find Z transform of $x(n) = \cos \omega_0 n$ for $n \geq 0$. 7
- (b) (i) Write convlution property of z transform Determine the convolution of the two sequences $x(n) = \{2, 1, 0, 0.5\}$ and $h(n) = \{2, 2, ,1, 1\}$. 4
- (ii) Write three important properties of ROC. 7
- (b) Answer in brief any four : 4
- (i) Define energy signal.
- (ii) What is LTI system
- (iii) Define casual system
- (iv) Find z transform for $z(n) = \{2, 13, 4, 0\}$
- (v) What is ROC?
- (vi) Write basic methods ofperforming the inverse z transform.

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- 3 (a) (a) State and explain uniqueness theorem. 7
- (b) What is hysteresis? Show that energy dissipated per unit volume in each cycle is proportional to area enclosed by hysteresis loop. 7
- OR**
- (a) Derive Maxwell's equation and explain displacement current term. 7
- (b) Discuss the polarization of electromagnetic waves with necessary equations. 7
- (b) Answer in brief any three : 3
- (i) Write Poisson's equation
- (ii) Write Laplacian operator in spherical polar coordinate system.
- (iii) Write Laplace's equation
- (iv) What is coercive force?
- (v) Write ferromagnetic substance.
- 4 (a) (a) Explain band theory from collective approach 7
- (b) Obtain an equation for conductivity of semiconductor in terms of charge carriers densities and their mobilities. 7
- OR**
- (a) Explain drift under electric field and generation recombination for the derivation of continuity equation 7
- (b) Discuss the diffusion of hole in n type semiconductor bar and obtain the expression for current density. 7
- (b) Answer in brief any three : 3
- (i) What is Einstein relation?
- (ii) What are the two conduction processes in semiconductor.
- (iii) What is intrinsic semiconductor
- (iv) Write two applications of continuity equation
- (v) Draw energy band diagram for conductor and insulator.
-

B.Sc. (Sem.-6) Examination

CC 310

Health Hygiene

March 2019

[Max. Marks : 70]

Time : 2-30 Hours]

- Que-1 (A) Discuss general expenditure in health care and its sources in India, [14]
OR
1. Explain Medical Insurance scheme with regards to its Terms and Claim process [7]
 2. Discuss potential for development of medical tourism in India [7]
- (B) Answer any Four in brief [4]
1. What is cashless treatment?
 2. Name four companies offering medical insurance
 3. What is 'Ayushman Bharat Yojana'?
 4. Define Medical ethics
 5. What is The Hippocratic Oath?
 6. Which surgeries are not deductible from taxable income?
- Que-2 (A) Explain Central Committee and Central Food Laboratory under The Prevention of Food Adulteration Act, 1954 [14]
OR
1. Explain important provisions of The Drugs Control Act, 1950 [7]
 2. Discuss constitution and functions of Central & State councils under Pharmacy Act, 1948 [7]
- (B) Answer any Four in brief [4]
1. Which type of food is prohibited from importing under the act?
 2. How term 'Cosmetics' is defined under Drugs and Cosmetic Act, 1940
 3. What are cannabis (hemp)?
 4. How Opium is derived?
 5. What is law for selling cocoa leaves or seed in India?
 6. Which act requires registration for trade of animal for experiment?
- Que-3 (A) Write note on council under Indian Medical Council Act, 1956 [14]
OR
1. Explain objectives of IMC (Conduct, Etiquette and Ethics) Regulations and duties of Physician thereunder [7]
 2. Write note on Committee and Officers under Indian Nursing Council Act, 1947 [7]
- (B) Answer any Three in brief [3]
1. What is term for President and Vice-president of the Indian Medical Council?
 2. List two actions by Physician regarded as unethical under the law.
 3. Name the act controlling award of degrees to qualify practice in western medicine.
 4. Which authority recognises degree for dental practices?
 5. When the Council can withdraw recognition to a Nursing College?
- Que-4 (A) Discuss important sections of Indian Penal Code 1860 related to medical profession [14]
OR
1. Describe important provision affecting medical termination of pregnancy [7]
 2. Discus how Pre-natal Diagnostic Technique is covered under the relevant laws [7]
- (B) Answer any Three in brief [3]
1. What is difference between IPC sections 300 and 307 for murder?
 2. What kind of offenses affecting human body are covered in IPC sections 375 to 377
 3. Name two places permitted to practice lawful medical termination of pregnancy
 4. What is brain-stem death?
 5. Who can give consent for organ donation, when the deceased has filed to do so?

B.Sc. (Sem.-6) Examination

Elective 311

Geology

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

૧. વર્ણન કરો: (અ) દૂર સંવેદન અને પ્રણાલીગત મોજણી પદ્ધતિ. (૧૪)
- અથવા
- (અ) (i) દૂર સંવેદનની ઇતિહાસ. (૦૯)
- (ii) વિજ્યુબકીય વિકિરણ. (૦૯)
- (ક) ટૂંકા જવાબ લખો (૭ માંથી કોઈ પણ ચાર): (૦૪)
- (૧). SARનું પૂર્ણ સ્વરુપ દર્શાવો.
- (૨). પારજાંબલી કિરણોની તરંગ લંબાઈ શું છે?
- (૩). દૂર સંવેદનમાં ઉપયોગી મૂળભુત વિજ્ઞાન દર્શાવો.
- (૪). ઇન્ફ્રારેડ (નિમ્નલાલ) કિરણોની તરંગ લંબાઈ આપો.
- (૫). IRSનું પૂર્ણ સ્વરુપ દર્શાવો.
- (૬). અભ્યારનાં થોડા ભારતીય ઉપગ્રહના નામ આપો.
૨. ચર્ચા કરો: (અ) GIS (ભૌગોલીક માહિતી પદ્ધતિ) માટે જરૂરી કોમ્પ્યુટર હાર્ડવેર અને સોફ્ટવેર. (૧૪)
- અથવા
- (અ) (i) GIS (ભૌગોલીક માહિતી પદ્ધતિ)નાં સંસ્થાકીય સંદર્ભ. (૦૯)
- (ii) GIS (ભૌગોલીક માહિતી પદ્ધતિ)ની ભૂસ્તરીય પ્રયુક્તિ. (૦૯)
- (ક) ટૂંકમાં જવાબ લખો (૭ માંથી કોઈ પણ ચાર): (૦૪)
- (૧). GISની મતલબ શું છે?
- (૨). સરકારી સંસ્થામાં GIS ના બે ઉપયોગો લખો.
- (૩). GIS માં મોડયુલ એટલે શું?
- (૪). GISની વ્યાખ્યા આપો.
- (૫). GIS માં ઘટક એટલે શું?
- (૬). ખાનગી ધંધા માટે GIS ની ઉપયોગીતા વિશે લખો.
૩. સમજાવો: (અ) ભૂગર્ભ અને સપાટી પરની ખાણ પદ્ધતિઓ. (૧૪)
- અથવા
- (અ) (i) શારકામ નિપુણતા. (૦૯)
- (ii) નિદેશન પદ્ધતિ. (૦૯)
- (ક) ટૂંકમાં લખો (પાંચમાંથી કોઈપણ ત્રણ): (૦૩)
- (૧). શારકામ એટલે શું?
- (૨). નિદેશન એટલે શું?
- (૩). પરખ એટલે શું?
- (૪). સપાટી પરની ખાણ સાથે સંકળાયેલ થોડા પર્યાય દર્શાવો.
- (૫). રેઈઝ એટલે શું?
૪. નીંધ લખો: (અ) વિગલન પરિક્ષણ અને શારણિક સંલેખન. (૧૪)
- અથવા
- (અ) (i) ઉચાઈ માપકનાં ઉપયોગો. (૦૯)
- (ii) સમતલીય સર્વેક્ષણ. (૦૯)
- (ક) ટૂંકમાં લખો (પાંચમાંથી કોઈપણ ત્રણ): (૦૩)
- (૧). હોકાયંત્ર એટલે શું?
- (૨). સર્વેક્ષણની વ્યાખ્યા આપો.
- (૩). નિદેશન એટલે શું?
- (૪). વિગલન એટલે શું?
- (૫). સર્વેક્ષણ માટે વપરાતી સાંકળની લંબાઈ દર્શાવો.

1. Write notes: (A) Remote sensing and conventional surveying methods. (14)
- OR**
- (A) (i) History of remote sensing. (07)
(ii) Electromagnetic radiation. (07)
- (C) Write brief answers (any four out of six): (04)
- (1). Provide full form of SAR.
 - (2). What is the wave length of ultraviolet light?
 - (3). Name basic science used in remote sensing.
 - (4). Give wave length of infra-red rays.
 - (5). Provide full form of IRS.
 - (6). Name few recent Indian satellites.
2. Describe: (A) Computer hard wares and soft wares required for GIS. (14)
- OR**
- (A) (i) Organisational context of GIS. (07)
(ii) Geological application of GIS. (07)
- (C) Write short answer (any four out of six): (04)
- (1). What is the meaning of GIS?
 - (2). Write two uses of GIS in government organisation.
 - (3). What is module in GIS?
 - (4). Define GIS.
 - (5). What is component in GIS?
 - (6). Write about usefulness of GIS for Private Business.
3. Explain: (A) Underground and opencast mining methods. (14)
- OR**
- (A) (i) Drilling techniques. (07)
(ii) Sampling methods. (07)
- (C) Write in short (any three out of five): (03)
- (1). What is drilling?
 - (2). What is sampling?
 - (3). What is assaying?
 - (4). Mention few terms related to open cast mining.
 - (5). What is raise?
4. Discuss: (A) Deviation testing and bore hole logging. (14)
- OR**
- (A) (i) Uses of altimeter. (07)
(ii) Plane table surveying. (07)
- (C) Write in brief (any three out of five): (03)
- (1). What is prismatic compass?
 - (2). Define surveying.
 - (3). What is sampling?
 - (4). What is deviation?
 - (5). Give length of chain used in surveying.

— X —

B.Sc. (Sem.-6) Examination**Elective 311****Computer Science****March 2019****Time : 2-30 Hours]****[Max. Marks : 70****Q-1 A Write the following.**

- (i) Explain Information Security roles and position And also explain the CIA triad cyber security Model. (14)

OR

- (i) Briefly explain the need for cyber security. (14)

Q-1 B. Write down the full forms.(Any four out of six) (4)

1.MALWARE 2.VIRUS 3.VPN 4.DOS 5.MOM 6.ISO

Q-2 A Write the following.

- (i) What is security governance? Explain the four pillars of security governance. Also explain the basic DOS commands. (14)

OR

- (i) Explain parkerian hexad cyber security model? What is malware? Explain types of malware. (14)

Q-2 B. Short questions(Any four out of six) (4)

1. What is threat?
2. List out the types of firewall.
3. What is cyber security?
4. What is encryption?
5. What is decryption?
6. What is cryptography?

Q-3 A Write the following.

- (i) Explain basic components of computer? What is security attack? Explain types of attack in detail. (14)

OR

- (i) What is enterprise structure? Explain enterprise structures and interfaces in detail. (14)

Q-3 B. Short questions(Any three out of five) (3)

1. What is threat?
2. What is a firewall?
3. CIA stands for...
4. What do you understand by Risk, Vulnerability & Threat in a network?
5. SSL stands for....

Q-4 A Write the following.
(i) Differentiate : computer security, information security and information assurance. Also write a short note on computer auditing. (14)

OR

(i) Briefly explain computer security model. And Also Explain cyber security management roles and function. (14)

Q-4 B. Short questions(Any three out of five) (3)

1. Which of the following is an anti-virus program

A.Norton B.K7 C.Quick heal D.All of these

2. . All of the following are examples of real security and privacy threats except:

A.Hackers B.Virus C.Spam D.Worm

3. Trojan horses are very similar to virus in the matter that they are computer programs that replicate copies of themselves

A.True B.False

4. _____ monitors user activity on internet and transmit that information in the background to someone else.

A.Malware B.Spyware C.Adware D.None of these

5. . Viruses are _____.

A.Man made B.Naturally occur C.Machine made D.All of the above

B.Sc. (Sem.-6) Examination

Elective 311

Statistics

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

- 1/93 Q.1 (a) 1 With respect to population growth, define birth and death rates, continuous time population growth model, role of weibull distribution and its survival function 9
- 2 State various factors that affect growth pattern of a population. 9
- OR
- (a) 1 Write a note on population growth. 9
- 2 Explain, in details, application of exponential distribution in population growth. 9
- (b) Answer **ANY THREE** of the following 6
- 1 Define discrete population growth.
- 2 What do you mean by Hazard Rate?
- 3 What does the positive growth ratio indicate?
- 4 What is change in population size during a fixed time? How to calculate it?
- Q.2 (a) 1 Describe, in brief, epidemiology 9
- 2 Explain odds, odds ratio. 9
- OR
- (a) 1 Discuss interpretation of odds ratio. 9
- 2 A survey was conducted to study lung cancer caused by smoking habit and exposure to asbestos on a group of people with on lungs of people. 48 of 177 people smoking but did not expose to asbestos, compared with 24 of 157 people smoking and had exposure to asbestos. Present the data in a tabular form and find odds ratio. 9
- (b) Answer **ANY THREE** of the following 6
- 1 Define risk ratio and give its formula.
- 2 Give two advantages of epidemiology.
- 3 State the role of relative risk.
- 4 With reference to epidemiology, what types of risks are included and explained by measures of association?
- Q.3 (a) 1 Write a note on clinical trials. 8
- 2 What are longitudinal studies? 8
- OR
- (a) 1 Explain different phases of clinical trials. 8
- 2 Give, in brief, general history of drug discovery. 8
- (b) Answer **ANY THREE** of the following 6
- 1 State two uses of clinical trials.
- 2 State the role of cross over design in clinical trials.
- 3 Explain evidence based design.
- 4 Define Simpson's paradox.

B.Sc. (Sem.-6) Examination

Elective 311

Electronics

March 2019

Time : 2-30 Hours]

[Max. Marks : 70

- (A) Write the following
- (i) Explain BORSCHT functions in the Subscriber Interface with block diagram. 07
 - (ii) Explain Switch Hook and Handset. Discuss about Telephone Set in detail. 07
- OR
- (i) Explain Subscriber Line Interface Circuit (SLIC) basic functions with block diagram. 07
 - (ii) Explain the Cordless Phone. Explain its Features & Capabilities. 07
- (B) Answer the following (Any Four out of Six) 04
- 1 Define : Varistor
 - 2 Give full form of SDMF.
 - 3 What is Local Loop?
 - 4 Give full form of PBAX.
 - 5 Define: Voice mail
 - 6 Give full form of CBX
- 2 (A) Write the following
- (i) Draw diagram of TDMA & FDMA and explain in detail. 07
 - (ii) Explain Cellular Telephone Systems with the help of Frequency Allocation. 07
- OR
- (i) Draw the block diagram explain the AMPS. 07
 - (ii) Explain EDGE in detail. What makes EDGE faster than GPRS? 07
- (B) Answer the following (Any Four out of Six) 04
- 1 Give full form of MIN.
 - 2 Give full form of MTSO.
 - 3 Define: Frequency Reuse.
 - 4 Give full form of AMPS
 - 5 Define Multiple Access.
 - 6 Give full form of FDMA.
- 3 (A) Write the following
- (i) Define the terms: VoIP, File Transfer, WWW and STS. 07
 - (ii) Write a note on Storage Area Networks with block diagram. 07
- OR
- (i) Explain Frame Relay and Asynchronous Transfer Mode with figure. 07
 - (ii) Discuss Internet Backbone with block diagram. 07
- (B) Answer the following (Any Three out of Five) 03
- 1 What is SDH?
 - 2 Give full form of http.
 - 3 Give full form of WWW.
 - 4 Give full form of UDP.
 - 5 Give full form of GPRS.
- 4 (A) Write the following
- (i) Explain star topology & ring topology with block diagram. 07
 - (ii) Explain LAN & WAN in detail. 07
- OR
- (i) Write a Note on Wireless LAN. 07
 - (ii) Describe how Hubs and Repeaters are used in LAN. 07
- (B) Answer the following (Any Three out of Five) 03
- 1 Give full form of MAN.
 - 2 Give full form of NAT.
 - 3 Give full form of PAN.
 - 4 What is Router?
 - 5 Give full form of TCP/IP.

