

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

21EC51

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Digital Communication

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. With necessary diagram, explain the generation and detection or reception of BPSK signal. (08 Marks)
- b. Derive the expression for error probability of BFSK. (08 Marks)
- c. Define bandwidth efficiency. Tabulate and comment on the bandwidth efficiency of m-ary PSK. (04 Marks)

OR

- 2 a. Sketch QPSK waveform for the binary data 01101000. (08 Marks)
- b. A binary FSK system transmits binary data at a rate of 2 Mbps over AWGN channel. The noise power spectral density $\left(\frac{N_0}{2}\right) = 10^{-20}$ W/Hz. Determine the probability of error for coherent detection of FSK scheme. Assume the amplitude of the received signal as $1 \mu\text{V}$. Consider $\text{erf}(2.5) = 0.99959$ or $\text{erfc}(\sqrt{625}) = 0.00041$. (06 Marks)
- c. With a neat block diagram, explain the generation of DPSK signal. (06 Marks)

Module-2

- 3 a. For the signals $s_1(t)$, $s_2(t)$, $s_3(t)$, shown in the given Fig.Q3(a), find the set of orthonormal basis function using GSOP. (10 Marks)

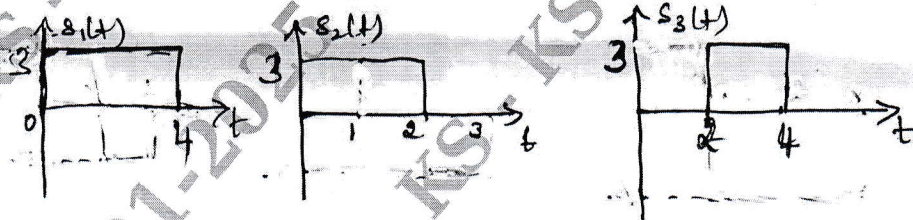


Fig. Q3(a)

- b. Explain the matched filter receiver with the relevant mathematical expressions. (06 Marks)
- c. Explain how to convert continuous AWGN channel into a vector channel. (04 Marks)

OR

- 4 a. Explain the design of band limited signals with controlled ISI, describe the Time domain and frequency domain characteristics of a duo-binary signal. (08 Marks)
- b. The binary sequence 111010010001101 is the input to the precoder whose output is used to modulate a duo binary transmitter filter. Obtain the precoded sequence, transmitted amplitude levels, the received signal level and the decoded sequence. (08 Marks)
- c. State Nyquist criteria. (04 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-3

- 5 a. Explain the generation of direct sequence spread spectrum with relevant waveform and spectrum. (08 Marks)
- b. Explain any three applications of DSSS. (06 Marks)
- c. List and explain the properties of PN sequence. (06 Marks)

OR

- 6 a. With a neat block diagram, explain the frequency hopped spread spectrum. (08 Marks)
- b. Draw a 3-stage LFSR, with first and 3rd stage connected to a modulo 2 adder and the output sequence is given by the 3rd stage. Consider 110 as the initial state. (08 Marks)
- c. The spread spectrum communication system has the following parameters, $T_b = 1.024$ msec, PN chip duration of $1 \mu\text{sec}$. The average probability of error of system is not to exceed 10^{-5} . Calculate length of shift register, processing gain and Jamming margin. (04 Marks)

Module-4

- 7 a. A code is composed of dots and dashes. Assuming that a dash is 3 times as long as a dot and has $1/3$ the probability of occurrence, calculate:
- The information in a dot and a dash
 - Entropy of dot dash code
 - Average rate of information, if a dot lasts for 10 msec and this time is allowed between symbols. (08 Marks)
- b. Given the message x_1, x_2, x_3, x_4, x_5 and x_6 with respective probabilities 0.4, 0.2, 0.2, 0.1, 0.07 and 0.03. Construct a binary code by applying Shannon's fano encoding procedure and determine the code efficiency and redundancy. (08 Marks)
- c. Define the following with respect to information theory:
- Self information
 - Rate of information (04 Marks)

OR

- 8 a. Apply Shannon's encoding binary algorithm to the following set of messages and obtain code efficiency and redundancy.

m_1	m_2	m_3	m_4	m_5
$\frac{1}{8}$	$\frac{1}{16}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{3}{8}$

- (08 Marks)
- b. Given the messages s_1, s_2, s_3 and s_4 with respective probabilities of 0.4, 0.3, 0.2 and 0.1. Construct a binary code by applying Huffman encoding procedure determine code efficiency and redundancy of the code. (08 Marks)
- c. List and explain the error control codes. (04 Marks)

Module-5

- 9 a. Consider a (6, 3) linear code where generator matrix is :

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

- Find all code vector.
- Find all the hamming weight and distances.
- Find min weight parity check matrix.
- Draw the encoder circuit for the above codes. (10 Marks)

- b. For a systematic (7, 4) linear block code, the parity matrix 'P' is given by

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

- (i) Find all possible code vector.
 (ii) Draw the corresponding encoding circuit.
 (iii) A single error has occurred in each of these received vector, detect and correct those errors.

$$R_A = [0111110]$$

$$R_B = [1011100]$$

$$R_C = [1010000]$$

(10 Marks)

OR

- 10 a. For the convolution encoder shown in Fig.Q10(a), the information sequence is $d = 10011$. Find the o/p sequence using the following 2 approaches.

- (i) Time domain approach
 (ii) Frequency domain approach/transform domain approach

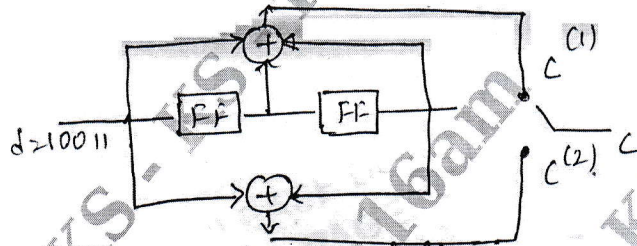


Fig.Q10(a) (2, 1, 2) convolutional encoder

(10 Marks)

- b. A gate 1/3 convolutional encoder has generating vectors $g_1 = 111$, $g_2 = 101$.
- (i) Sketch the encoder configuration, write the transition table.
 (ii) Draw the code tree and state diagram.
 (iii) If input message sequence is 10111, determine the output sequence of the encoder using transform domain approach.

(10 Marks)

CBCS SCHEME

USN

1	K	S	2	1	E	C	1	0	8
---	---	---	---	---	---	---	---	---	---

21EC52

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Computer Organization and ARM Microcontrollers

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain the pipelining and superscalar operation. (05 Marks)
- b. Briefly explain the different key parameters that affects the processor performance. (05 Marks)
- c. With a neat diagram, explain basic operational concept of computer. (10 Marks)

OR

- 2 a. Mention the difference between Big-endian and Little-endian assignments. (05 Marks)
- b. Explain the different types of addressing modes. (10 Marks)
- c. With diagram explain the Interrupt Hardware. (05 Marks)

Module-2

- 3 a. With diagram explain the internal organization of a 2M×8 dynamic memory chip. (10 Marks)
- b. Explain the operations of synchronous DRAM. (10 Marks)

OR

- 4 a. Explain the different types of memories. (10 Marks)
- b. With neat diagram explain the multiple bus organization. (10 Marks)

Module-3

- 5 a. Explain the architecture of ARM core dataflow model. (10 Marks)
- b. With neat diagram explain the ARM based embedded system. (10 Marks)

OR

- 6 a. Explain the ARM condition flag register. (05 Marks)
- b. What is pipeline? Explain the 3-stage ARM pipeline. (05 Marks)
- c. Explain the architecture of ARM processor. (10 Marks)

Module-4

- 7 a. With example explain the following instructions:
i) ADC ii) EOR iii) SWI iv) UMULL v) SBC (10 Marks)
- b. With neat diagram explain the ARM stack operation. (10 Marks)

OR

- 8 a. Explain the ARM Registers and also explain each. (10 Marks)
- b. Explain the following ARMVSE extension instructions:
i) CLZ ii) QADD iii) QSUB iv) SMLAxy v) QDADD (10 Marks)

Module-5

- 9 a. Explain the following THUMB instructions:
i) TST ii) ROR iii) BX iv) BKPT v) ASR (10 Marks)
- b. Discuss the ARM support basic C data types. (10 Marks)

OR

- 10 a. Explain the ARM function calls and loop operations. (10 Marks)
- b. With example explain the single register and multiple register load store ARM instructions. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

21EC53

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Computer Communication Networks

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Describe the layers of the TCP/IP protocol suite and explain the service provided by each layer with the help of a neat diagram. (10 Marks)
- b. With neat diagrams, explain the working of ARP. Describe the structure and functions of various fields in the ARP packet. (10 Marks)

OR

- 2 a. With neat diagrams, explain the salient features, advantages and disadvantages of various physical topologies used in computer networks. (12 Marks)
- b. Explain with neat diagrams, the concepts of encapsulation and decapsulation at various layers of the TCP/IP protocol suite, during communication between two hosts. (08 Marks)

Module-2

- 3 a. With clear examples, illustrate the following concepts and explain:
(i) Byte stuffing and unstuffing
(ii) Bit stuffing and unstuffing (10 Marks)
- b. An ALOHA network transmits 200 bit frames on a shared channel of 200 kbps. Calculate the throughput of the system if it produces 1000 frames per second in case of:
(i) Pure ALOHA (ii) SLOTTED ALOHA (06 Marks)
- c. Explain the Ethernet Frame Format with a neat diagram. (04 Marks)

OR

- 4 a. With relevant flow diagrams, explain 1-persistent, non-persistent and p-persistent methods in CSMA. (10 Marks)
- b. Explain the working of CSMA/CA protocol with a neat flow diagram. Describe how CSMA/CA overcomes the problems of collision during handshaking and hidden stations. (10 Marks)

Module-3

- 5 a. Explain virtual circuit approach used in packet switching. With neat diagrams and an example, illustrate the 3 stages of virtual circuit approach. (10 Marks)
- b. With a neat diagram, explain the IPv4 datagram. (10 Marks)

OR

- 6 a. Explain distance vector routing algorithm, using Bellman-Ford equations. Illustrate the same with an example. (10 Marks)
- b. Describe how the IPV4 address space is occupied in classful addressing. (04 Marks)
- c. An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its 3 subnets: one subblock of 10, one subblock of 60, and one subblock of 120 addresses. Design the subblocks. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-4

- 7 a. Describe the connectionless and connection-oriented services provide by the transport layer in TCP/IP. (10 Marks)
- b. With a neat diagram, explain the TCP segment format, including the pseudoheader. (10 Marks)

OR

- 8 a. Explain the selective repeat protocol with neat diagrams and illustrate with an example. (10 Marks)
- b. The content of a UDP header format is given as CB84000D001C001C. Determine the following:
- (i) The source port number
 - (ii) The destination port number
 - (iii) Total length of the user datagram
 - (iv) Length of the data
 - (v) Is the packet directed from client to server or vice-verse? (05 Marks)
- c. Explain Checksum calculation in UDP using pseudoheader. (05 Marks)

Module-5

- 9 a. Explain the architecture of Electronic Mail, with a neat diagram. (10 Marks)
- b. Explain persistent and non-persistent connections in HTTP, with example. (10 Marks)

OR

- 10 a. With a neat taxonomy, describe various security attacks in communication networks. (08 Marks)
- b. With neat diagrams, explain the following with respect to DNS:
- (i) Name space
 - (ii) DNS in the internet
 - (iii) Name Address Resolution (12 Marks)

* * * * *

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

21EC54

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Electromagnetic Waves

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. If two position vectors $\vec{A} = -2\vec{a}_x - 5\vec{a}_y - 4\vec{a}_z$ and $\vec{B} = 2\vec{a}_x + 3\vec{a}_y + 5\vec{a}_z$ then find,
i) \vec{AB} ii) \vec{a}_A, \vec{a}_B iii) \vec{a}_{AB} iv) Unit vector from C to A where C is (3, 5, 8)
(06 Marks)
- b. Ten identical charges each of $500 \mu\text{C}$ are spaced equally around a circle of radius 2 m. Find the force on a charge of $-20 \mu\text{C}$ located on the axis, 2m from the plane of the circle.
(07 Marks)
- c. Define Electric Field Intensity. Derive expression for electric field intensity due to 'n' number of charges.
(06 Marks)

OR

- 2 a. Given the two points A(2, 3, -1) and B(4, 25, 120). Find spherical coordinates of A and Cartesian coordinates of B.
(06 Marks)
- b. Derive an expression for electric field intensity due to infinite line charge.
(07 Marks)
- c. Find electric field \vec{E} at origin, if the following charge distribution are present in free space :
i) Point charge of 21nC at P(2, 0, 6)
ii) Uniform line charge of infinite length with charge density $\rho_l = 3 \text{ nC/m}$ at $x = 2, y = 3$.
iii) Uniform surface charge of density 0.2 nC/m^2 at $x = 2$.
(07 Marks)

Module-2

- 3 a. A charge is uniformly distributed over a spherical surface of radius 'a'. Determine electric field intensity at all the places, use Gauss law.
(07 Marks)
- b. Evaluate both sides of divergence theorem for the field $\vec{D} = 2xy\vec{a}_x + x^2\vec{a}_y \text{ C/m}^2$, for a rectangular parallel piped formed by the planes $x = 0$ and $x = 1$; $y = 0$ and $y = 2$; $z = 0$ and $z = 3$.
(08 Marks)
- c. Show that electric field intensity is negative potential gradient.
(05 Marks)

OR

- 4 a. The flux density $\vec{D} = \frac{r}{3}\vec{a}_r \text{ nC/m}^2$ in free space :
i) Find \vec{E} at $r = 0.2 \text{ m}$
ii) Find the total electric flux leaving the sphere of $r = 0.2 \text{ m}$.
iii) Find the total charge within the sphere of $r = 0.3 \text{ m}$
(07 Marks)
- b. State and prove Gauss divergence theorem.
(07 Marks)
- c. Derive an expression for continuously equation.
(06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, $42+8 = 50$, will be treated as malpractice.

Module-3

- 5 a. Determine whether or not the following potential fields satisfy the Laplace's equation:
 i) $V = x^2 - y^2 + z^2$ ii) $V = r \cos\phi + z$ iii) $V = r \cos\theta + \phi$ (06 Marks)
- b. Evaluate both sides of Stoke's theorem for the field $\vec{H} = 6xy\vec{a}_x - 3y^2\vec{a}_y$ A/m, for rectangular path around the region, $2 \leq x \leq 5$, $-1 \leq y \leq 1$, $z = 0$. (08 Marks)
- c. Explain the concept of magnetic potential. (06 Marks)

OR

- 6 a. State and prove uniqueness theorem. (06 Marks)
- b. Two plates of parallel plate capacitor are separated by distance 'd' and maintained at potential zero and V_0 respectively. Determine,
 i) Potential at any position between the plates
 ii) Surface charge density on the plates
 iii) Capacitance between the plates. (08 Marks)
- c. Find the magnetic flux density at the centre 'O' of a square of sides equal to 5 m and carrying 10 A of current. (06 Marks)

Module-4

- 7 a. Derive an expression for force on a differential current element and find force experienced by conductor of 6 m long, lies along z-direction with a current of 2A in \vec{a}_z direction, if $\vec{B} = 0.08\vec{a}_x$ T. (07 Marks)
- b. Explain magnetization and permeability. (07 Marks)
- c. Derive boundary conditions at the interface of two magnetic materials. (06 Marks)

OR

- 8 a. A point charge of $Q = -1.2$ C has velocity $\vec{v} = (5\vec{a}_x + 2\vec{a}_y - 3\vec{a}_z)$ m/s. Find the magnitude of force exerted on the charge if,
 i) $\vec{E} = -18\vec{a}_x + 5\vec{a}_y - 10\vec{a}_z$ V/m
 ii) $\vec{B} = -4\vec{a}_x + 4\vec{a}_y + 3\vec{a}_z$ T
 iii) Both are present simultaneously. (07 Marks)
- b. Find the magnetization in a magnetic material where:
 i) $\mu = 1.8 \times 10^5$ H/m and $M = 120$ A/m
 ii) $\mu = 22$, there are 8.3×10^{28} atoms/m³ each atom has a dipole moment of 4.5×10^{-27} A/m² and
 c. iii) $B = 300$ μ T and $X_m = 15$ (07 Marks)
- State and explain Faraday's law of electromagnetic induction. Hence obtain Maxwell's equation in point form and integral form. (06 Marks)

Module-5

- 9 a. Derive Maxwell's equations for time varying fields, represent them in point form and integral form. (08 Marks)
- b. Obtain relationship between \vec{E} and \vec{H} in free space. (06 Marks)

- c. In free space $\vec{E} = 50 \cos(\omega t - \beta z) \vec{a}_x$ V/m. Find the average power crossing a circular area of radius 2.5m in the plane $z = 0$. (06 Marks)

OR

- 10 a. Given $\vec{E} = E_m \sin(\omega t - \beta z) \vec{a}_y$ in free space, find \vec{D} , \vec{B} and \vec{H} . Sketch \vec{E} and \vec{H} at $t = 0$. (08 Marks)
- b. Explain wave propagation in good conductor with relevant equations. (08 Marks)
- c. Wet marshy soil is characterized by $\sigma = 10^{-2}$ s/m, $\epsilon_r = 15$ and $\mu_r = 1$. At 1 MHz whether soil be considered as conductor or dielectric. (04 Marks)

--	--	--	--	--	--	--	--	--	--

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Research Methodology and Intellectual Property Rights

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Give various definitions of research explaining its meaning and scope. Explain the objective and motivation in Engineering research. (08 Marks)
- b. Describe the steps involved in research process with neat diagram. (06 Marks)
- c. What is ethics in Engineering research? Why it is important. (06 Marks)

OR

- 2 a. What is research problem? Define the main issues which should receive the attention of the research in formulating the research problem. (08 Marks)
- b. Discuss in detail various types of research. (06 Marks)
- c. Describe different types of research misconduct. (06 Marks)

Module-2

- 3 a. Discuss the importance of critical literature review and its uses in planning innovation research. (06 Marks)
- b. Explain the concept of knowledge flow through citation. How collaborations certainly impact citation counts? Explain. (08 Marks)
- c. Write short notes on : (06 Marks)
 - i) Google and Google scholar
 - ii) Acknowledgment and Attributions

OR

- 4 a. Analyze the following terms which do not fulfill the actual goal of citations and acknowledgements. i) Spurious citations ii) Biased citations iii) Self citations iv) Coercive citations. (08 Marks)
- b. What are the things author should acknowledge? (06 Marks)
- c. Elaborate on the following : (06 Marks)
 - i) Technical reading
 - ii) Critical and creative reading.

Module-3

- 5 a. What are Intellectual Property Rights? Explain the necessity of it. (06 Marks)
- b. Differentiate between invention and Innovation. What is a Patent? What are the criteria of patentability? (08 Marks)
- c. Enumerate the procedure for application preparation filing and grant of patents. (06 Marks)

OR

- 6 a. List and explain in detail about various types of Intellectual property rights. (08 Marks)
- b. Explain in detail about the infringement of patents. (06 Marks)
- c. What types of invention are not patentable in India? (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-4

- 7 a. What is Copyright? Explain classes, criteria and ownership of copyright. (08 Marks)
b. Discuss about the copyright ownership issues. (06 Marks)
c. Describe the process involved in the registration of a trademark. (06 Marks)

OR

- 8 a. Enumerate the procedure for registration of copyright. (08 Marks)
b. Explain about the Trademark and rights from trademarks registration. (06 Marks)
c. Explain about types of Trademarks registered in India. (06 Marks)

Module-5

- 9 a. How can industrial designs be protected? (06 Marks)
b. What is a geographical indication? Explain the following with respect to GI.
i) Ownership and right granted to the GI holders
ii) Registered GI in India (08 Marks)
c. Explain the following :
i) Famous Industrial Designs
ii) Generic GI and Homonymous GI (06 Marks)

OR

- 10 a. Explain the classification of Industrial Designs. (06 Marks)
b. Explain the procedure for GI registration. (08 Marks)
c. Explain about the enforcement of IPR in India. (06 Marks)

* * * * *

CBCS SCHEME

21CIV57

USN

--	--	--	--	--	--	--	--	--	--

Question Paper Version : A

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Environmental Studies

Time: 1 hrs.]

[Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

-
1. Environment means
a) A beautiful landscape
b) Industrial production
c) Sum total of all condition
d) None of these
 2. The term ecosystem was introduced by
a) Hackel
b) Odum
c) Tansley
d) All of these
 3. The ecological pyramid that is always upright.
a) Pyramid of energy
b) Pyramid of biomass
c) Pyramid of number
d) None of these
 4. 5th June is observed as
a) World Forest Day
b) World Environment Day
c) World Wildlife Day
d) World Population Day
 5. MoEF means
a) Ministry of Forest and Energy
b) Ministry of Environment and Forests
c) Ministry of Fuel and Energy
d) Management of Environment and Forestry
 6. In Aquatic Ecosystem Phytoplankton can be considered as a
a) Consumer
b) Producer
c) Macro consumer
d) Micro consumer
 7. _____ has Maximum Genetic Diversity in India.
a) Potato
b) Tea
c) Mango
d) Teak

8. Chipko movement was started to conserve
 a) Forests b) Grasslands c) Deserts d) Soil
9. The sequence of eating and being eaten in an eco-system is called
 a) Food chain b) Carbon cycle
 c) Hydrological cycle d) Anthroposystem
10. Which of the following is a biotic component of an eco system?
 a) Fungi b) Solar Light c) Temperature d) Humidity
11. Hydroelectric Power plant is _____
 a) Non-renewable source of energy b) Conventional source of energy
 c) Non-conventional source of energy d) Continuous source of energy
12. Which isotope of uranium is used for the nuclear fission reaction?
 a) U-234 b) U-235 c) U-238 d) U-233
13. A solar cell is an electrical device that converts the energy of light directly into electricity by the
 a) Photovoltaic effect b) Chemical effect
 c) Atmospheric effect d) Physical effect
14. Bhopal gas tragedy occurred in the year
 a) 1986 b) 1990 c) 1984 d) 1991
15. Wind is beneficial resource of energy as it does not cause
 a) Pollution b) Echo c) Noise d) Sound
16. Which of the following is not a renewable source of energy?
 a) Wind energy b) Tidal wave energy
 c) Solar energy d) Fossil fuels
17. Nuclear Power Plant in Karnataka is located at
 a) Bhadravathi b) Kaiga c) Sandur d) Raichur
18. In Hydro Power Plants, power is generated by
 a) Hot Springs b) Wind c) Water d) Solar Energy
19. Which is not natural disaster?
 a) Cyclone b) Nuclear explosion
 c) Earthquake d) Volcano
20. Radiation is a health hazard because it leads to
 a) Typhoid b) Cancer c) Colour blindness d) Pneumonia
21. Water pollution is caused by
 a) Sewage b) Industrial effluents
 c) Discharge from farms d) All of these
22. Which of the following are non-biodegradable?
 a) Plastics b) Domestic sewage
 c) Detergents d) Both a and c

23. Chlorine can be used
a) To kill pathogenic micro organisms b) To increase the pH
c) To clear the turbidity d) All of these
24. What does E-waste stand for?
a) Environment waste b) Electronic waste
c) Equipment waste d) None of these
25. The noise is measured in
a) Decibels b) Joules c) PPM d) NTU
26. Maximum dissolved oxygen is required by
a) Fish b) Bacteria c) Vegetables d) All of these
27. Colorless, odorless and non corrosive air pollutant is
a) Sulphur dioxide b) Carbon monoxide
c) Carbon dioxide d) Ozone
28. Which of the following is not a greenhouse gas?
a) CO₂ b) CH₄ c) CFC d) H₂
29. For the survival of fish in a river stream, the minimum DO is prescribed
a) 3 PPM b) 4 PPM c) 5 PPM d) 10 PPM
30. Water pollution can be minimized by
a) Releasing sewage to ocean b) Releasing effluent to wasteland
c) Treating wastewater d) None of these
31. Global warming could effect
a) Climate b) Increase in sea level
c) Melting of glaciers d) All of these
32. The primary cause of acid rain around the world is
a) Carbon dioxide b) Sulphur dioxide
c) Carbon monoxide d) Ozone
33. Acid rain effects on
a) Materials b) Plants c) Soil d) All of these
34. Ozone layer is present in
a) Troposphere b) Stratosphere
c) Mesosphere d) Thermosphere
35. Ozone layer absorbs
a) UV rays b) Infrared rays c) Cosmic rays d) CO
36. The Fluoride concentration for prevention of dental caries is
a) 3 mg/L b) 2 mg/L c) 1 mg/L d) 4 mg/L
37. D.D.T is a
a) Fungicide b) Pesticide c) Fertilizer d) Disinfectant

38. When trees are cut, amount of oxygen
 a) decreases b) increases c) both a and b d) remains same
39. World ozone day is being celebrated on
 a) September 5th b) October 15th c) September 16th d) September 11th
40. The effect of acid rain
 a) Reduces soil fertility b) Increases atmospheric temperature
 c) Skin cancer d) Causing respiratory problems
41. Which among the following is not related to GIS software?
 a) CAD b) ARC GIS c) RC VIEW d) STAAD PRO
42. GIS stands for
 a) Geographic Information System b) Generic Information System
 c) Geological Information System d) Geographic Information System
43. Among the following _____ can be expressed as an example of hardware component?
 a) Keyboard b) Arc GIS c) Autocad d) Digitalization
44. The basic requirement of any sensor system is
 a) Spatial resolution b) Spectral Resolution
 c) Radiometric Resolution d) All of these
45. IS 14000 standards are for the
 a) Quality Management System b) Environmental Management System
 c) Administration d) Supply Chain
46. What is the main objective of secondary treatment of sewage plants?
 a) To remove the suspended particles
 b) To remove the contaminants
 c) To remove the BOD
 d) To remove the organic material
47. Which of the following is the un agency on health?
 a) WHO b) FAO c) UNESCO d) WTO
48. What is the full form of NGO's?
 a) Non-governmental Organizations b) Non Governance Organizations
 c) No Governance Organizations d) Null Governmental Organizations
49. When did green peace founded?
 a) 1965 b) 1967 c) 1968 d) 1971
50. When did the Bombay Natural History Society (BNHS) founded?
 a) 1857 b) 1868 c) 1883 d) 1897

* * * * *