CBCS SCHEME

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BCS501

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
Software Engineering and Project Management

Time: 3 hrs.   Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain software process and software engineering practices.	10	L2	CO1
	b.	Explain the waterfall model and incremental model, with diagram.	10	L2	CO1
		OR			
Q.2	a.	Explain Boehm Spiral process model with a neat diagram. Mention its advantages and disadvantages.	10	L2	CO1
	b.	Explain the five activities of a generic process framework for software engineering.	10	L2	CO1
		Module – 2			
Q.3	a.	Explain the distinct tasks of requirement engineering.	10	L2	CO2
	b.	Illustrate the UML use case diagram for safe home system.	10	L2	CO2
		OR			
Q.4	a.	Explain Class-Responsibility-Collaborator(CRC) modeling and data modeling with an example.	10	L2	CO2
	b.	Explain the elements of analysis model in requirement modeling.	10	L2	CO2
		Module – 3			
Q.5	a.	Explain the principles of agile process development.	10	L2	CO3
	b.	Explain the following : i) Adaptive software development ii) SCRUM	10	L2	CO3
		OR			
Q.6	a.	Explain the concepts of extremes programming with a neat diagram.	10	L2	CO3
	b.	Explain design modeling principles that guide the respective framework activity.	10	L2	CO3
		Module – 4			
Q.7	a.	Illustrate the project management life cycle with a neat diagram.	10	L2	CO4
	b.	Explain : i) Different ways of categorizing software projects ii) Smart objectives	10	L2	CO4
		OR			
Q.8	a.	Explain the difference between traditional versus modern project management practices along with the role of management.	10	L3	CO4
	b.	Explain software development life cycle (ISO 12207) with a neat diagram.	10	L2	CO4
		Module – 5			
Q.9	a.	Explain Quality Management System with principles of BS EN ISO-9001-2000.	10	L2	CO5
	b.	Explain the following : i) McCall model ii) Garvin's Quality Dimensions.	10	L2	CO5
		OR			
Q.10	a.	Describe six generic functions allowed in automated estimation techniques of software projects.	10	L3	CO5
	b.	Explain COCOMO II model.	10	L2	CO5

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Fifth Semester B.E./B.Tech. Degree Examination, June/July 2025
Software Engineering & Project Management

Time: 3 hrs.   Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	**M**	**L**	**C**
Q.1	**a.**	Explain the software process in software engineering highlighting the importance of software engineering.	10	L2	CO1
	b.	Explain the five activities that a generic process framework for software engineering encompasses.	10	L2	CO1
		OR			
Q.2	**a.**	Explain software myths with examples.	10	L2	CO1
	b.	Explain Incremental process models and evolutionary process models with a neat diagram.	10	L2	CO1
		Module – 2			
Q.3	**a.**	Explain the different tasks which requirements engineering encompasses.	10	L2	CO2
	b.	Explain the nature and characteristics of software system.	10	L2	CO2
		OR			
Q.4	**a.**	Explain requirements elicitation and various techniques used in requirements elicitation along with its importance.	10	L2	CO2
	b.	Illustrate an UML use case diagram for home security function.	10	L2	CO2
		Module – 3			
Q.5	**a.**	Explain Agile process and agility principles.	10	L2	CO3
	b.	Explain Extreme Programming (XP) with a neat diagram.	10	L2	CO3
		OR			
Q.6	**a.**	Explain SCRUM process with a neat diagram.	10	L2	CO3
	b.	Explain Agility with the cost of change with diagram. Explain the principles of Agile software development.	10	L2	CO3
		Module – 4			
Q.7	**a.**	Explain different categories of software projects with example.	10	L2	CO4
	b.	Compare between Project Management Life Cycle And Software Development Life Cycle and its phases.	10	L2	CO4
		OR			
Q.8	**a.**	Explain the difference between traditional and modern project management.	10	L2	CO4
	b.	Explain the concepts in activity planning in software project management.	10	L2	CO4
		Module – 5			
Q.9	**a.**	Explain place of software quality in project management.	10	L2	CO5
	b.	Explain in detail the techniques to enhance software quality.	10	L1	CO5
		OR			
Q.10	**a.**	Explain Quality Management Systems. With principles of BSENISO9001 : 2000.	10	L2	CO5
	b.	Explain the techniques to enhance software quality and software reliability. Explain SEICMM levels.	10	L2	CO5

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CBCS SCHEME

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

Time: 3 hrs.   Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	What is data communication? List and explain characteristics and components of communication model.	06	L1	CO1
	b.	Define switching. Explain Circuit Switched Network and Packet Switched Network.	06	L2	CO1
	c.	With neat sketch, explain different layers of TCP/IP protocol suite.	08	L2	CO1
		OR			
Q.2	a.	What are guided transmission media? Explain twisted pair cable in detail.	06	L1	CO1
	b.	What is Virtual Circuit Network (VCN)? With neat diagram, explain three phases involved in VCN.	08	L1	CO1
	c.	Write a note on Encapsulation and decapsulation at Source Host for TCP/IP protocol suite.	06	L2	CO1
		Module – 2			
Q.3	a.	Define Redundancy. Explain CRC encoder and CRC decoder operation with block diagram.	08	L2	CO2
	b.	Distinguish between Flow Control and Error Control. Explain Stop and Wait Protocol.	08	L2	CO2
	c.	List and explain Control Fields of I-frames, S-frames and U-frames.	04	L2	CO2
		OR			
Q.4	a.	What is Hamming distance? With example, explain Parity Check Code.	06	L1	CO2
	b.	Define Framing. Explain character oriented framing and bit-oriented framing.	06	L1	CO2
	c.	With flow diagram, explain CSMA/CA.	08	L2	CO2
		Module – 3			
Q.5	a.	Explain virtual-circuit approach to route the packets in packet-switched network.	10	L2	CO3
	b.	Illustrate the working of OSPF and BGP.	10	L3	CO3
		OR			
Q.6	a.	Explain IPv6 datagram format.	10	L2	CO3
	b.	Write an Dijikstra's algorithm to compute shortest path through graph.	06	L1	CO3
	c.	Write a note on Routing Information Protocol (RIP) algorithm.	04	L2	CO3
		Module – 4			
Q.7	a.	Explain Go-Back-N protocol working.	10	L2	CO4
	b.	With neat sketch, explain three-way handshaking of TCP connection establishment.	10	L2	CO4

		OR			
Q.8	**a.**	With an outline, explain selective repeat protocol.	**10**	**L2**	**CO4**
	b.	List and explain various services provided by User Datagram Protocol (UDP).	**10**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	Briefly explain Secure Shell (SSH).	**10**	**L2**	**CO4**
	b.	Write a note on Request message and response message formats of HTTP.	**10**	**L2**	**CO4**
		OR			
Q.10	**a.**	With neat diagram, explain the basic model of FTP.	**04**	**L2**	**CO4**
	b.	Describe the architecture of electronic mail (e-mail).	**06**	**L3**	**CO4**
	c.	Briefly explain Recursive Resolution and Iterative Resolution in DNS.	**10**	**L2**	**CO4**

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BCS502

Fifth Semester B.E./B.Tech. Degree Examination, June/July 2025
Computer Networks

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	**M**	**L**	**C**
Q.1	**a.**	Define Data Communications. Explain the characteristics and components of Data communication with neat diagram.	10	L2	CO1
	b.	With neat diagram explain the Layers in the TCP /IP protocol suite.	10	L2	CO1
		OR			
Q.2	**a.**	Explain in detail the guided and unguided Media transmission with suitable diagram.	12	L2	CO1
	b.	Describe the working of Datagram network with suitable sketches	08	L2	CO1
		Module – 2			
Q.3	**a.**	With a neat sketch describe the working of simple protocol of Data Link Layer. Develop a program to implement a sliding window protocol in the data link layer.	12	L2	CO2
	b.	Illustrate the stop and wait protocol of DLL with an example.	08	L2	CO2
		OR			
Q.4	**a.**	Solve : i) In parity check if the dataword is 1011. What is the code word? What happens at receiver, if the receive word is a)10011 b) 10110 c)01011 ii) Generate CRC for the dataword $x^3 + 1$ and the generator $x^3 + x + 1$. What happens if the received word is 1000110. iii) Generate checksum of list of five 4-bit number (7,11,12,0,6) and verify the same at receiver.	12	L3	CO2
	b.	Illustrate the working of CSMA/CA with a flow diagram	08	L2	CO2
		Module – 3			
Q.5	**a.**	Summarize the packet format of IPV6 datagram with suitable diagram.	10	L2	CO2
	b.	Develop an algorithm for Distance Vector Routing and explain the same.	10	L2	CO4
		OR			
Q.6	**a.**	Explain MOSPF with an example and suitable diagram.	10	L3	CO4
	b.	Develop algorithm for Link state Routing and explain the same.	10	L2	CO4
		Module – 4			
Q.7	**a.**	Illustrate the working of Go-back-N protocol with an example	12	L2	CO4
	b.	Explain connectionless aand connection oriented services in Transport layer.	08	L2	CO2
		OR			
Q.8	**a.**	Illustrate the connection establishment and termination in TCP/IP with suitable sketches.	12	L2	CO3
	b.	With sketch of TCP segment format, describe its field.	08	L2	CO3
		Module – 5			
Q.9	**a.**	Explain FTP and its two connections.	10	L2	CO3
	b.	Explain SMTP with diagram and the mail transfer phases.	10	L2	CO3
		OR			
Q.10	**a.**	Explain MIME and its header.	10	L2	CO3
	b.	Explain SSH and its components with neat diagram.	10	L2	CO3

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Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
Theory of Computation

Time: 3 hrs.   Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	**a.**	Define the following with example : i) Language ii) String iii) Power of an alphabet.	3	L1	CO1
	b.	Define DFA. Draw a DFA to accepts. i) The set of all strings that contain a substring aba. ii) To accept the stings of a's and b's that contain not more than there b's. iii) L = {w ∈ {a, b}* : No 2 consecutive characters are same in w}.	10	L3	CO1
	c.	Convert the following NFA to DFA. $\begin{array}{c\|cc} & 0 & 1 \\ \hline \rightarrow p & \{p, q\} & \{p\} \\ q & \{r\} & \{r\} \\ r & \{s\} & \phi \\ * \ s & \{s\} & \{s\} \end{array}$	7	L2	CO1
		OR			
Q.2	**a.**	Define the following with example : i) Alphabet ii) Reversal of string iii) Concatenation of Languages.	3	L1	CO1
	b.	Design a DFA for the Language : L = {w ∈ {0, 1}* : w is a string divisible by 5}.	7	L3	CO1
	c.	Define NFA. Obtain an ε - NFA which accepts strings consisting of 0 or more a's , followed by 0 or more b's followed by 0 or more C's. Also convert it to DFA.	10	L2	CO1
		Module – 2			
Q.3	**a.**	Define Regular expression. Write the regular expression for the following languages : i) Strings of a's and b's starting with a and ending with b. ii) Set of strings that consists of alternating 0's and 1's. iii) L = {a^n bm , (n + m) is even}. iv) L = {w : / w / mod 3 = 0 , where w ∈{a, b}*}.	10	L2	CO2

	b.	Minimize the following finite automata using Table filling algorithm :	**10**	**L2**	**CO2**

$$\begin{array}{c|cc} \delta & a & b \\ \hline \rightarrow A & B & A \\ B & A & C \\ C & D & B \\ * \; D & D & A \\ E & D & F \\ F & G & E \\ G & F & G \\ H & G & D \end{array}$$

		OR			
Q.4	**a.**	Construct ε - NFA for the following Regular expression : i) $(0+1)\,0\,1(1+0)$ ii) $1(0+1)^*0$ iii) $(0+1)^*\,0\,1\,1^*$	**6**	**L1**	**CO2**
	b.	Obtain the Regular expression that denotes the language accepted by Fig. Q4(b). Fig. Q4(b) Using Kleene's theorem.	**6**	**L3**	**CO2**
	c.	State the Pumping Lemma for the Regular Languages. And also prove that the following languages are note regular. i) $L = \{0^n\,1^m \mid n \le m\}$ ii) $L = \{0^n\,1^m\,2^n \mid n, m \ge 1\}$.	**8**	**L1**	**CO2**
		Module – 3			
Q.5	**a.**	Design CFG for the following languages : i) $L = \{a^n\,b^{n+3}, n \ge 0\}$ ii) $L = \{a^i\,b^j\,c^k, j = i + k, i \ge 0, k \ge 0\}$ iii) $L = \{w \, / \, /w/ \bmod 3 > 0 \text{ where } w \in \{a\}^*\}$ iv) $L = \{a^m\,b^n \, / \, m \ne n\}$ v) Palinderomes over 0 and 1.	**10**	**L3**	**CO3**
	b.	Consider the grammar G with productions. $S \rightarrow A\,b\,B \, / \, A \, / \, B$; $A \rightarrow aA \, / \, \varepsilon$; $B \rightarrow a\,B \, / \, b\,B \, / \, \varepsilon$. Obtain LMD , RMD and parse tree for the string aaabab. Is the given grammar ambiguous?	**10**	**L2**	**CO3**
		OR			
Q.6	**a.**	Define the following with example : i) Context free grammar ii) Left most Derivation iii) Parse tree iv) Ambiguous grammar.	**4**	**L1**	**CO3**
	b.	Design PDA for the language : $L = \{a^i\,b^j\,c^k \, / \, i + k = j, i \ge 0, k \ge 0\}$ and show the moves made by the PDA for the string aabbbc.	**10**	**L3**	**CO3**

	c.	Convert the following CFG's to PDA : $S \rightarrow a A$; $A \rightarrow a\ ABC / bB / a$; $B \rightarrow b$; $C \rightarrow c$.	6	L2	CO3

Module – 4

Q.7	a.	Define CNF. Convert the following CFG to CNF $E \rightarrow E + T / T$ $T \rightarrow T * F / F$ $F \rightarrow (E) / I$ $I \rightarrow Ia / Ib / a / b$.	10	L2	CO4
	b.	Show that $L = \{0^n 1^n 2n / n \geq 1\}$ is no context free.	4	L2	CO4
	c.	Prove that the family of context free languages is closed under union and concatenation.	6	L1	CO4

OR

Q.8	a.	Define Greibach Normal Form. Convert the following CFG to GNF. $S \rightarrow AB$; $A \rightarrow aA / bB / b$; $B \rightarrow b$.	6	L2	CO4
	b.	Consider the following CFG : $S \rightarrow ABC / BaB$ $A \rightarrow aA / BaC / aaa$ $B \rightarrow bBb / a / D$ $C \rightarrow CA / AC$ $D \rightarrow \varepsilon$ i) What are useless symbols? ii) Eliminate ε - productions , Unit productions and useless symbols from the grammar.	10	L3	CO4
	c.	Prove that the following languages are not context free. i) $L = \{ai / i \text{ is prime}\}$ ii) $L = \{a^{n^2} / n \geq 1\}$.	4	L2	CO3

Module – 5

Q.9	a.	Define a turing machine and explain with neat diagram, the working of a basic turing machine.	6	L1	CO4
	b.	Design a Turing machine to accept the language, $L = \{a^n b^n c^n / n \geq 1\}$. Draw the transition diagram and show the moves for the string aabbcc.	14	L4	CO4

OR

Q.10	a.	Design a Turing machine to accept palindrome over $\{a, b\}$ and draw the transition diagram.	12	L4	CO5
	b.	Write a short notes on : i) Recursively Enumerable Language. ii) Multitape Turing Machine.	8	L1	CO5

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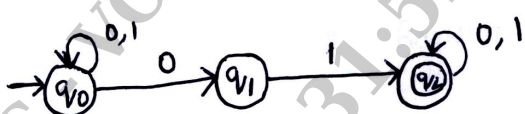
Fifth Semester B.E./B.Tech. Degree Examination, June/July 2025
Theory of Computation

Time: 3 hrs.   Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

			Module – 1	M	L	C
Q.1	**a.**		Define the following with an example: i) Alphabet ii) Power of an alphabet iii) String iv) String concatenation v) Language	5	L1	CO1
	b.		Define Deterministic Finite Automata (DFA) and the language accepted by it.	5	L1	CO1
	c.		Design DFA to accept the following languages: i) $L = \{W \in \{0, 1\}^* : W \text{ has } 001 \text{ as a substring}\}$ ii) $L = \{W \in \{0, 1\}^* : |W| \bmod 3 = 0\}$	10	L3	CO1
			OR			
Q.2	**a.**		Convert the following NFA to DFA Fig.Q.2(a)	8	L2	CO1
	b.		Convert the following $\in$ - NFA to DFA Fig.Q.2(b) and define $\in$ - NFA	12	L2	CO1
			Module – 2			
Q.3	**a.**		Define regular expression. Write the regular expression for the following languages: i) Representing for strings of a and b's having odd length. ii) To accept 10 as substring over an alphabet $\Sigma = \{0, 1\}$	10	L2	CO2
	b.		State and prove pumping Lemma for regular languages.	10	L2	CO2

		OR			
Q.4	**a.**	Prove that regular languages are closed under complementation and intersection.	**10**	**L2**	**CO2**
	b.	i) Obtain NFA (Non deterministic finite automata) for the regular expression $(a + b)^*$ abb. ii) Obtain NFA for the regular expression $(a^* + ab)(a + b)^*$	**6**	**L2**	**CO2**
	c.	Write the applications of regular expression.	**4**	**L2**	**CO2**
		Module – 3			
Q.5	**a.**	Define context free grammar. Write the CFG for the following languages: i) $L = \left\{ a^n b^n c^m : \begin{matrix} n \geq 0 \\ m >= 0 \end{matrix} \right\}$ ii) $L = \{w \in \{a, b\}^* : n_a(w) = n_b(w)\}$	**10**	**L2**	**CO2**
	b.	i) Define ambigious grammar with suitable example. ii) Consider the grammar $E \rightarrow + EE / * EE / - EE / x / y$ Find the left most derivation, right most derivation and parse tree for the string "$+* -xyxy$".	**10**	**L2**	**CO2**
		OR			
Q.6	**a.**	Define PDA (Push Down Automata). Design a PDA to accept the following language: $L = \{a^n b^n : n \geq 0\}$. Draw the transition diagram and show that instantaneous description for the string aaabbb.	**10**	**L3**	**CO3**
	b.	Convert the following CFG to PDA: i) $E \rightarrow E + E \big| E * E \big| id$ ii) $E \rightarrow I \big| E * E \big| (E)$ $I \rightarrow id$	**6**	**L2**	**CO3**
	c.	Discuss the language accepted by PDA.	**4**	**L1**	**CO3**
		Module – 4			
Q.7	**a.**	Convert the following grammar to CNF (Chomsky Normal Form) $S \rightarrow ASB/ \in$ $A \rightarrow aAS/a$ $B \rightarrow SbS \big| A \big| bb$ and define CNF	**10**	**L2**	**CO3**
	b.	State and prove pumping Lemma for context free languages.	**10**	**L2**	**CO3**

		OR			
Q.8	a.	What are useless and $\in$ productions? Eliminate $\in$, unit and useless productions from the following grammar: $A \rightarrow bA / Bba / aa$ $B \rightarrow aBa / b / D$ $C \rightarrow CA / AC / B$ $D \rightarrow a / \in$	10	L3	CO3
	b.	Prove that the family of context free languages is closed under union concatenation and star closure.	10	L2	CO3
		Module – 5			
Q.9	a.	Define a Turing Machine. Explain the working and variants of Turing machine.	10	L1	CO4
	b.	Design a Turing machine to accept $L = \{a^n b^n c^n \mid n \geq 0\}$. Draw the transition diagram. Show the moves mode for string aabbcc.	10	L3	CO4
		OR			
Q.10	a.	Explain language acceptability and design of Turing Machines (Steps).	10	L2	CO5
	b.	Explain the following: i) Programming techniques for turing machines ii) Undecidability problem.	10	L2	CO5

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CBCS SCHEME

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BCS515C

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
UNIX System Programming

Time: 3 hrs.   Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

			M	L	C
		Module – 1			
Q.1	a.	Explain the Kernel and Shell relationship in UNIX operating system with a neat diagram.	10	L1	CO1
	b.	Explain the following UNIX commands with syntax and examples: i) who ii) ls iii) passwd iv) echo v) date	10	L2	CO1
		OR			
Q.2	a.	Explain any five file related commands with syntax and example of each.	10	L2	CO1
	b.	Explain the salient features of UNIX operating system.	04	L1	CO1
	c.	Explain the file types or categories.	06	L2	CO1
		Module – 2			
Q.3	a.	Explain the use of chmod command to change file permission using both absolute and relative methods.	10	L2	CO2
	b.	Explain ls commands with all the options and examples.	10	L2	CO2
		OR			
Q.4	a.	Explain grep commands with all its options.	10	L2	CO2
	b.	Explain three standard files in UNIX.	06	L2	CO2
	c.	Explain the steps of shell interpretive cycle.	04	L2	CO2
		Module – 3			
Q.5	a.	Explain POSIX and SUS (Single UNIX Specification) standards.	04	L2	CO3
	b.	Develop a C program to demonstrate the use of open( ) and read( ) system call in UNIX.	10	L3	CO3
	c.	Explain the use of mkdir( ) and rmdir( ) function in managing directories.	06	L2	CO3
		OR			
Q.6	a.	Differentiate between character special files and block special files.	06	L2	CO3
	b.	Develop a c program to demonstrate the chdir( ) and fchdir( ) functions in UNIX.	10	L3	CO3
	c.	Explain the memory layout of a C program in UNIX.	04	L2	CO3
		Module – 4			
Q.7	a.	Develop both the fork and vfork function in a example program.	10	L3	CO4
	b.	Explain briefly with an example two system v IPC mechanism: i) Message Queues ii) Semaphores	10	L2	CO4
		OR			
Q.8	a.	Explain pipes and its limitations upon developing a program to send data from parent to child over a pipe.	10	L2	CO4
	b.	Explain the client server communication using FIFO with a neat diagram.	10	L2	CO4
		Module – 5			
Q.9	a.	Illustrate signal in UNIX and develop program to setup signal handlers for sigsetsmp( ) and ·abort( ).	10	L3	CO5
	b.	Explain Daemon process by developing program to transform a normal user into a Daemon process.	10	L3	CO5
		OR			
Q.10	a.	Explain implement SIGPROCMASK and SIGCONGJMP functions with examples.	10	L2	CO5
	b.	Explain coding rules and error logging for Daemon process with neat diagram.	10	L2	CO5

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BCS515C

Fifth Semester B.E./B.Tech. Degree Examination, June/July 2025
Unix System Programming

Time: 3 hrs.   Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	**M**	**L**	**C**
Q.1	**a.**	Explain Unix Architecture with neat diagram.	08	L2	CO1
	b.	List and explain the salient features of Unix Operating System	06	L1	CO1
	c.	Explain the following commands with suitable example. i) echo ii) ls iii) who iv) date v) cal vi) printf	06	L2	CO1
		OR			
Q.2	**a.**	Define file. Explain three categories of unix files system.	04	L1	CO1
	b.	Write a short note on : i) Parent – child relationship ii) Absolute and relative pathname	06	L2	CO1
	c.	Explain the following file related command with appropriate syntax, options and example i) cat ii) Mr iii)rm iv) cp v) wc	10	L2	CO1
		Module – 2			
Q.3	**a.**	Briefly explain the listing of file attribute with ls – l command	10	L2	CO2
	b.	Explain briefly the chmod with respect to relative permission and absolute permission with example.	10	L2	CO2
		OR			
Q.4	**a.**	With help of a example, explain grep command and the options supported for searching a pattern.	10	L3	CO2
	b.	Explain shell interpretive life cycle	02	L2	CO2
	c.	Explain if, while, for and case control statement in shell scripts with suitable program.	08	L2	CO2
		Module – 3 2			
Q.5	**a.**	Explain the general file control functions o2pen ( ), Read ( ), create (c) write ( ) and close ( ) with syntax, examples.	10	L2	CO3
	b.	With neat diagram, explain memory layout of C program	10	L2	CO3
		OR			
Q.6	**a.**	Explain setjmp and longjmp, getrlimit and setrlimit with examples	10	L2	CO3
	b.	Explain chdir, fchdir and getcwd functions with an example C program	10	L2	CO3
		Module – 4			
Q.7	**a.**	Describe how the process is created using fork ( ) and v fork ( ) with suitable C program example.	10	L3	CO4
	b.	What is race condition? Explain in detail with example how to overcome race condition.	10	L2	CO4

		OR			
Q.8	**a.**	Define pipes. Write a program to send data from parent to child using pipe API and also list its limitations.	**10**	**L2**	**CO4**
	b.	What is FIFO ? With a neat diagram explain client server communication using FIFO.	**10**	**L1**	**CO4**
		Module – 5			
Q.9	**a.**	Define signal. List the actions taken by process when the signal is raised. Explain signal API's Signal ( ), Sigset( ) Sigaction ( )	**10**	**L2**	**CO5**
	b.	What is error logging? With a neat block diagram discuss the error login facility in BSD.	**10**	**L2**	**CO5**
		OR			
Q.10	**a.**	What are Daemon process ? Explain daemon characteristics and coding Rules.	**10**	**L2**	**CO5**
	b.	Explain the Sigsetjmp and siglagjmp function with example.	**10**	**L2**	**CO5**

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CBCS SCHEME

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BRMK557

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

Time: 3 hrs.   Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Identify the meaning of Research and brief out the objective and motivation in engineering research.	10	L1	CO1
	b.	Explain brief about research cycle and verify with the research flow diagram.	10	L1	CO1
		OR			
Q.2	a.	Identify the types of engineering research and briefly explain them.	10	L1	CO1
	b.	Explain about the different types of research misconduct.	10	L1	CO1
		Module – 2			
Q.3	a.	Explain about the importance of literature review and technical reading.	10	L2	CO2
	b.	Mention the various benefits of bibliographic databases.	10	L1	CO2
		OR			
Q.4	a.	Indentify the impact of technical reaction and brief about it.	10	L1	CO2
	b.	Enumerate the impact of title and keywords on citation with example.	10	L2	CO2
		Module – 3			
Q.5	a.	Define Intellectual properties and explain about its types.	10	L1	CO3
	b.	Explain about the key aspect of patent law.	10	L2	CO3
		OR			
Q.6	a.	Explain about the assessment of novelty.	10	L1	CO3
	b.	Brief about the patent procedure in India.	10	L1	CO4
		Module – 4			
Q.7	a.	Mention and brief about the justification for copyright law.	10	L2	CO4
	b.	Explain about the basic concepts of under lying copyright law.	10	L1	CO4
		OR			
Q.8	a.	Brief about the various representations of sound recordings.	10	L2	CO5
	b.	Explain about TRIPS agreement in detail.	10	L1	CO5

		Module – 5			
Q.9	**a.**	Explain about the justification of protection designs.	**10**	**L2**	**CO5**
	b.	Brief about the excluded subjected matter in the context of design protection.	**10**	**L1**	**CO5**
		OR			
Q.10	**a.**	What are the rights of the owner of designs? Explain.	**10**	**L1**	**CO5**
	b.	Brief about the Assignment of Design Rights.	**10**	**L1**	**CO5**

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Fifth Semester B.E./B.Tech. Degree Examination, June/July 2025
Research Methodology and IPR

Time: 3 hrs.   Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

			Module – 1	M	L	C
Q.1	a.		Define the term research and explain the research flow cycle with a relevant diagram.	10	L1	CO1
	b.		What are the key ethical issues related to authorship? Explain any one.	10	L2	CO1
			OR			
Q.2	a.		Define Engineering research and list its aims and objectives.	10	L1	CO1
	b.		Write a note on the following research misconduct : i) Plagiarism ii) Other types of research bias.	10	L2	CO1
			Module – 2			
Q.3	a.		What are the primary goals of conducting a literature review in academic research?	10	L2	CO2
	b.		Explain various steps involved in critical and creative reading.	10	L2	CO2
			OR			
Q.4	a.		How does new and existing knowledge can contribute to the research process? Explain relevant points.	10	L3	CO2
	b.		Explain Knowledge flow through citation.	10	L2	CO2
			Module – 3			
Q.5	a.		What inventions are eligible for patenting and which matters are considered non – patentable?	10	L2	CO3
	b.		Explain classes of copyrights.	10	L1	CO3
			OR			
Q.6	a.		Define the term patent and what conditions must be met for obtaining patent protection.	10	L2	CO3
	b.		Explain the following major steps involved in the process of patent registration : i) Prior Art search ii) Choice of application to be filed iii) Pre-grant opposition.	10	L2	CO3
			Module – 4			
Q.7	a.		Using flow chart, explain the important steps involved in the process of copyrights registration.	10	L2	CO4

	b.	What are the different categories trademarks recognized under Indian law and tabulate the famous trademark types with examples.	**10**	**L3**	**CO4**
		OR			
Q.8	**a.**	What are the roles and functions of the copyright board and copyright society in administering copyright law and regulations?	**10**	**L3**	**CO4**
	b.	Using a flow chart, explain the steps involved in the process of trademarks registration.	**10**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	Discuss the design registration procedure using a flow chart.	**10**	**L2**	**CO5**
	b.	Define Geographical Indications (GI) with an example. What are the rights granted to GI holders.	**10**	**L2**	**CO5**
		OR			
Q.10	**a.**	Using a flowchart, explain the process of GI registration.	**10**	**L2**	**CO5**
	b.	Explain the classification of Industrial Designs and design registration , trends in India.	**10**	**L2**	**CO5**

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Question Paper Version : A

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

Time: 1 hr.]   [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

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1. Which of the following conceptual spheres of the environment is having the least storage capacity for matter?
   a) Atmosphere   b) Lithosphere   c) Hydrosphere   d) Biosphere

2. The ratio between energy flows at different points in a food chain is known as
   a) Ecological capacity   b) Ecological efficiency
   c) Ecological assimilation   d) Ecological potential

3. A predator is
   a) An animal that is fed upon another animal
   b) Animal that feeds upon both plants and animals
   c) An animal that feeds upon another animal
   d) A primary consumer

4. Why Rann of Kutch attracts aquatic birds in monsoon season?
   a) Because desert land is converted to forest land
   b) Because desert land is converted to snow
   c) Because desert land do not convert
   d) Because desert land is converted to salt marshes

5. Which kind of soil we can find on the surface of Thar desert?
   a) Rocky   b) Moist   c) Fertile   d) Aeolian

6. Which of the following type of forest important for watersheds?
   a) Tropical Evergreen forests   b) Tropical Deciduous forests
   c) Tropical Montana forests   d) Grassland forest

7. Hot spots areas have
   a) Low density of biodiversity
   b) Only endangered plants
   c) High density of hot springs
   d) High density of biodiversity

8. Sustainable Development means
   a) meeting present needs without compromising on future needs
   b) progress of human beings
   c) balance between human needs and the ability of earth to provide the resources
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   b) Community and ecosystem diversity
   c) Species diversity within a community or ecosystem
   d) Diversity among the plant

10. Algae , green plants and photosynthetic bacteria are
    a) Autotrophic   b) Heterotrophic   c) Decomposers   d) Consumers

11. Veld type grasslands are located at
    a) South Africa   b) South America   c) Australia   d) Britain

12. Which pyramid is always upright?
    a) Energy   b) Biomass   c) Numbers   d) Food chain

13. In what form is solar energy is radiated from the Sun?
    a) Ultraviolet Radiation
    b) Infrared Radiation
    c) Electromagnetic waves
    d) Transverse waves

14. What does MHD stands for in the energy field?
    a) Magneto Hydro Dynamic
    b) Metal Hydrogen Detox
    c) Micro Hybrid Drive
    d) Metering Head Differential

15. The 'Miracle Material' that can turn CO_2 into liquid fuel is :
    a) Propane   b) Copper   c) Graphene   d) Potassium

16. A tide whose difference between high and low tide is greatest.
    a) Diurnal tide   b) Neap tide   c) Spring tide   d) Ebb tide

17. Which of the turbine can be mounted vertically and horizontally.
    a) Pelton wheel   b) Kaplan turbine   c) Gorlov turbine   d) Francis turbine

18. Which type of fuel is removed from the reactor core after reaching end of core life service?
    a) Burnt fuel   b) Spent fuel   c) Engine oil   d) Radioactive fuel

19. What is a fuel cell?
    a) Converts heat energy to chemical energy
    b) Converts heat energy to electrical energy
    c) Converts chemical energy to electrical energy
    d) Converts kinetic energy to heat energy

20. Which one of the following is the apex organization in our country in the field of pollution control?
   a) Water Pollution Control Board
   b) State Pollution Control Board
   c) Central Pollution Control Board
   d) Air Pollution Control Board

21. _____ is caused by drinking water high in nitrates.
   a) Cholera
   b) Kidney problem
   c) Liver problem
   d) Methomoglobinemia

22. Bhopal gas tragedy took place in the year ____ and the gas responsible was ____
   a) 1964, Hydrogen fluoride
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   a) $NO, NO_2 , VOC , O_3 , PAN$
   b) $N_2O , NO_2 , VOC, O_3 , PAN$
   c) $NO, NO_2 , VOC , O_2 , PAN$
   d) $NO, N_2O_5, VOC, O_3 , PAN$

24. The international protocol to protect the Ozone layer is
   a) Vienna protocol
   b) Kyoto protocol
   c) Cartagena protocol
   d) Montreal protocol

25. Which is the best and the worst method of plume behavior for pollution dispersion?
   a) Lofting and fumigation
   b) Trapping and fanning
   c) Conning and fumigation
   d) Fanning and Lofting

26. What is called for a Temporary hearing loss?
   a) Temporary ear pain
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27. What timings loud speakers shouldn't use in public areas?
   a) 10.00 pm to 5.00 am
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   c) 1.00 am to 7.00 am
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28. In which section, if a person violates the noise pollution regulations , is liable for penalty according to Environmental Protection Act, 1986.
   a) Section 12
   b) Section 15
   c) Section 18
   d) Section 19

29. 'Minamata Disease" is caused due to
   a) Lead
   b) Arsenic
   c) Mercury
   d) Cadmium

30. The process of reducing the fluoride content from water is called as
   a) Chlorination
   b) Fluoridation
   c) Defluoridation
   d) Fanning and Lofting

31. What is the Dissolved oxygen value required for the survival of aquatic species?
   a) 7 mg/L
   b) 8.2 mg/L
   c) 6.5 mg/L
   d) 4 mg/L

32. Which among the following is used to dump the waste collected in the cities?
   a) Land fills
   b) Ocean
   c) River
   d) All of these

33. Which type of waste includes items such as leftover food, fruit peels and yard trimmings?
    a) Hazardous waste
    b) Organic waste
    c) Bio – medical waste
    d) Electronic waste

34. Which of the integrated waste management is reduced on an individual level?
    a) Source Reduction   b) Recycling   c) Disposal   d) Burning

35. What is called for the process of burning municipal solid waste in a properly designed furnace under suitable temperature and operating conditions?
    a) Landfill   b) Recycling   c) Vermicomposting   d) Incineration

36. The process of decomposition of biodegradable solid waste by earthworms is called
    a) Landfill   b) Vermicomposting   c) Composting   d) Shredding

37. ____ is a liquid that passes through solid waste and extracts suspended impurities from it
    a) Leachate   b) Sludge   c) Distilled water   d) Municipal

38. The colour code of plastic bag for disposing of microbial laboratory culture waste
    a) black   b) red   c) blue   d) white

39. Average hospital waste produced per bed per day in Government hospital is
    a) 1.5 to 2 kg   b) 0.5 – 4 kg   c) 0.5 to 1 kg   d) 0.5 – 2 kg

40. Which of the following are the main contributors of the e –waste in the world?
    I.   Refrigerators / freezers , washing machines , dishwashers.
    II.   Small household appliances
    III. Personal computers, telephones , laptops , printers.
    IV.   Gas cylinders, chimneys and home appliances
    a) Only I, II, III   b) Only I & II   c) Only I, III , IV   d) All of these

41. What is Extended Producer Responsibility (EPR) as per the e – waste management rules in India?
    a) The responsibility of consumer to manage e – waste
    b) The responsibility of manufactures to manage e – waste throughout the product life cycle
    c) The responsibility of retailers to manage e – waste disposal
    d) The responsibility of informal recyclers to manage e – waste.

42. Which international agreement regulates the transboundary movements of hazardous waste, including e – waste?
    a) Kyoto Protocol
    b) Paris agreement
    c) Montreal Protocol
    d) Basel convention

43. Which colour bin is used for e – waste?
    a) Blue   b) Green   c) Yellow   d) Black

44. What are the health hazards which can be caused by E – waste?
    a) Lung cancer   b) DNA damage   c) Brain   d) All of these

45. Preparation of Guidelines for Environmentally sound Management of e – waste is a duty assigned to
   a) Producer   b) Consumer   c) MOEFCC   d) SP CB/PCC

46. What is India's global rank in e –waste?
   a) 3   b) 13   c) 23   d) 33

47. When did the Karnataka State Pollution Control Board for prevention and control of water pollution constituted?
   a) 1974   b) 1978   c) 1982   d) 1986

48. Aerosol consisting of liquid droplets is called as
   a) Mist   b) Dust   c) Fog   d) Aerosol

49. Which of the following is non – point source of water pollution?
   a) Factories   b) Sewage treatment plant
   c) Urban and suburban land   d) All of these

50. When is World Water day celebrated?
   a) January 26th b) June 5th c) September 22nd d) March 22nd

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Question Paper Version : B

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

Time: 1 hr.]   [Max. Marks: 50

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* * * * *

USN [   ]

Question Paper Version : C

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

Time: 1 hr.]   [Max. Marks: 50

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3. The major chemical pollutants in photochemical smog are
   a) NO, NO_2, VOC, O_3, PAN   b) N_2O, NO_2, VOC, O_3, PAN
   c) NO, NO_2, VOC, O_2, PAN   d) NO, N_2O_5, VOC, O_3, PAN

4. The international protocol to protect the Ozone layer is
   a) Vienna protocol   b) Kyoto protocol
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5. Which is the best and the worst method of plume behavior for pollution dispersion?
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    a) Blue   b) Green   c) Yellow   d) Black

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    a) Lung cancer   b) DNA damage   c) Brain   d) All of these

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16. What is India's global rank in e –waste?
    a) 3   b) 13   c) 23   d) 33

17. When did the Karnataka State Pollution Control Board for prevention and control of water pollution constituted?
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21. What is the Dissolved oxygen value required for the survival of aquatic species?
    a) 7 mg/L   b) 8.2 mg/L   c) 6.5 mg/L   d) 4 mg/L

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    a) Land fills   b) Ocean   c) River   d) All of these

23. Which type of waste includes items such as leftover food, fruit peels and yard trimmings?
    a) Hazardous waste   b) Organic waste
    c) Bio – medical waste   d) Electronic waste

24. Which of the integrated waste management is reduced on an individual level?
    a) Source Reduction   b) Recycling   c) Disposal   d) Burning

25. What is called for the process of burning municipal solid waste in a properly designed furnace under suitable temperature and operating conditions?
    a) Landfill   b) Recycling   c) Vermicomposting   d) Incineration

26. The process of decomposition of biodegradable solid waste by earthworms is called
    a) Landfill   b) Vermicomposting   c) Composting   d) Shredding

27. _____ is a liquid that passes through solid waste and extracts suspended impurities from it
    a) Leachate   b) Sludge   c) Distilled water   d) Municipal

28. The colour code of plastic bag for disposing of microbial laboratory culture waste
    a) black   b) red   c) blue   d) white

29. Average hospital waste produced per bed per day in Government hospital is
    a) 1.5 to 2 kg   b) 0.5 – 4 kg   c) 0.5 to 1 kg   d) 0.5 – 2 kg

30. Which of the following are the main contributors of the e –waste in the world?
    I. Refrigerators / freezers , washing machines , dishwashers.
    II. Small household appliances
    III. Personal computers, telephones , laptops , printers.
    IV. Gas cylinders, chimneys and home appliances
    a) Only I, II, III   b) Only I & II   c) Only I, III , IV   d) All of these

31. Veld type grasslands are located at
    a) South Africa   b) South America   c) Australia   d) Britain

32. Which pyramid is always upright?
    a) Energy   b) Biomass   c) Numbers   d) Food chain

33. In what form is solar energy is radiated from the Sun?
    a) Ultraviolet Radiation   b) Infrared Radiation
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34. What does MHD stands for in the energy field?
    a) Magneto Hydro Dynamic   b) Metal Hydrogen Detox
    c) Micro Hybrid Drive   d) Metering Head Differential

35. The 'Miracle Material' that can turn CO_2 into liquid fuel is :
    a) Propane   b) Copper   c) Graphene   d) Potassium

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40. Which one of the following is the apex organization in our country in the field of pollution control?
    a) Water Pollution Control Board   b) State Pollution Control Board
    c) Central Pollution Control Board   d) Air Pollution Control Board

41. Which of the following conceptual spheres of the environment is having the least storage capacity for matter?
    a) Atmosphere   b) Lithosphere   c) Hydrosphere   d) Biosphere

42. The ratio between energy flows at different points in a food chain is known as
    a) Ecological capacity   b) Ecological efficiency
    c) Ecological assimilation   d) Ecological potential

43. A predator is
    a) An animal that is fed upon another animal
    b) Animal that feeds upon both plants and animals
    c) An animal that feeds upon another animal
    d) A primary consumer

44. Why Rann of Kutch attracts aquatic birds in monsoon season?
    a) Because desert land is converted to forest land
    b) Because desert land is converted to snow
    c) Because desert land do not convert
    d) Because desert land is converted to salt marshes

45. Which kind of soil we can find on the surface of Thar desert?
    a) Rocky   b) Moist   c) Fertile   d) Aeolian

46. Which of the following type of forest important for watersheds?
    a) Tropical Evergreen forests   b) Tropical Deciduous forests
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47. Hot spots areas have
    a) Low density of biodiversity   b) Only endangered plants
    c) High density of hot springs   d) High density of biodiversity

48. Sustainable Development means
    a) meeting present needs without compromising on future needs
    b) progress of human beings
    c) balance between human needs and the ability of earth to provide the resources
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49. The term Alpha diversity refers to
    a) Genetic diversity   b) Community and ecosystem diversity
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50. Algae , green plants and photosynthetic bacteria are
    a) Autotrophic   b) Heterotrophic   c) Decomposers   d) Consumers

* * * * *

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Question Paper Version : D

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

Time: 1 hr.]   [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.

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31. _____ is caused by drinking water high in nitrates.
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    c) Liver problem
    d) Methomoglobinemia

32. Bhopal gas tragedy took place in the year ____ and the gas responsible was ____
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* * * * *

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Question Paper Version : A

Fifth Semester B.E./B.Tech. Degree Examination, June/July 2025
Environmental Studies and E – Waste Management

Time: 1 hr.]   [Max. Marks: 50

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1. In an ecosystem biological cycling of materials is maintained by
   a) Producer   b) Consumer   c) Decomposer   d) All of these

2. The primary producers in a forest ecosystem are
   a) Chlorophyll containing trees and plants b) Herbivores
   c) Carnivores   d) Bacteria and other micro - organisms

3. Which of the following is the terrestrial ecosystem?
   a) Forest   b) Grass land   c) Desert   d) All of these

4. Food web consists of
   a) a portion of food chain   b) an organism position in a food chain
   c) interlocking food chain   d) a set of similar consumers

5. The area of National Parks range between
   a) 0.61 to 7818 kms   b) 0.04 to 3162 kms   c) 0.14 to 3612 kms   d) 0.16 to 8718 kms

6. Which Indian state has its maximum area under the forest cover?
   a) Maharashtra   b) Madhya Pradesh   c) Arunachal Pradesh d) Karnataka

7. How many parts are there in forest ecosystem?
   a) Biotic type   b) Abiotic type   c) Both (a) & (b)   d) None of these

8. To which of the following is Ramsor convention related?
   a) Protection of wild life   b) Protection of environment
   c) Protection of rivers   d) Protection of wetlands

9. Which of the following option is not included in the sustainable development parameters?
a) Gender inequality
b) Intergenerational and intragenerational equity
c) Growing annually   d) None of these

10. How many sustainable development goals are there?
a) 10   b) 12   c) 13   d) 17

11. Which of the following are biodegradable pollutants?
a) Plastics   b) Domestic sewage   c) Detergent   d) All of these

12. BOD means
a) Biochemical Oxygen Demand   b) Chemical Oxygen Demand
c) Biophysical oxygen Demand   d) All of these

13. Sound beyond which of the following level can be regarded as a pollutant.
a) 40 dB   b) 80 dB   c) 120 dB   d) 150 dB

14. Which of the following is a point source of water pollution?
a) Factories   b) Sewage treatment plants
c) Urban & Sub – urban lands   d) Both (a) & (b)

15. Pesticide causes
a) Eye irritation   b) Skin irritation   c) Respiratory ailment d) All of these

16. Amount of waste infectious produced in hospitals.
a) 45 %   b) 65 %   c) 80 %   d) 100 %

17. Cytotoxic and expired drugs are disposed of by
a) Dumping   b) Autoclave   c) Incineration   d) All of these

18. Color code of plastic bag for disposing of microbial laboratory culture waste __
a) Black   b) Red   c) Blue   d) White

19. All of the waste are incinerated except
a) Reactive chemical waste   b) Vaccine
c) Mutilated parts   d) Discarded drugs

20. The average composition of municipal solid waste is
a) 41 % organic , 40 % inert & 19 % recyclable.
b) 20 % organic , 60% inert & 20 % recyclable
c) 30 % organic , 20% inert & 50 % recyclable
d) 19 % organic , 41% inert & 40 % recyclable

21. Major atmospheric gas layer in stratosphere is
a) Hydrogen   b) Carbon dioxide   c) Ozone   d) Helium

22. World Environment day is on____
a) 5th May   b) 5th June   c) 3rd Jan   d) 1st June

23. Which of the following is not a green house gas?
   a) Hydro chlorofluorocarbons
   b) Methane
   c) CO_2
   d) SO_2

24. Global warming could affect
   a) Climate
   b) Increase in sea level
   c) Melting of glaciers
   d) All of these

25. Primary cause of acid rain around the world is due to
   a) Carbon dioxide   b) Sulphur dioxide   c) Carbon monoxide   d) Ozone

26. What is the main reason for the depletion of groundwater levels?
   a) Rains are less frequent
   b) Tree cover has reduced
   c) Tube wells and hand pumps are used for irrigation
   d) The course of river being changed and dams built

27. What happens when water contains 8 – 20 PPM of fluoride concentration?
   a) Blue baby disease
   b) Crippling fluorosis
   c) Dental fluorosis
   d) Mottling of teeth

28. Coral reefs of India are located in
   a) Goa
   b) Himalayan region
   c) Andaman & Nicobar Islands
   d) Uttar Pradesh

29. What is the allowable concentration of fluorides in drinking water?
   a) 1.0 mg/L   b) 1.25 mg/L   c) 1.5 mg/L   d) 1.75 mg/L

30. Minmata disease is caused by
   a) Lead   b) Mercury   c) Cadmium   d) Arsenic

31. When did National Disaster Management Authority form?
   a) 2000   b) 2005   c) 2010   d) 2015

32. Scientific study of earthquake is called
   a) Seismograph   b) Seismology   c) Both (a) & (b)   d) None of these

33. Mass killing diseases can be referred as
   a) Biological disaster
   b) Industrial disaster
   c) War disaster
   d) Flood disaster

34. South Africa is leading exporter of which mineral?
   a) Copper   b) Diamond   c) Silver   d) Gold

35. Which one of the following is an exhaustible resource?
   a) Coal   b) Rain precipitation   c) Air   d) Tidal energy

36. Which of the following is a non – renewable resource?
   a) Solar energy   b) Wind energy   c) Fossil fuels   d) Hydro power

37. Which of the following is an example of sustainable use of water resources?
   a) Overuse of ground water
   b) Building dams on rivers
   c) Rainwater harvesting
   d) Dumping industrial waste in rivers

38. Geothermal energy is a
   a) Heat energy
   b) Current energy
   c) Wind energy
   d) Solar energy

39. Molasses from sugar industry is used to generate
   a) Biodiesel
   b) Hydrogen
   c) Bio-ethanol
   d) Bio - methanol

40. Nuclear power plant in Karnataka is located at
   a) Bhadravati
   b) Sandur
   c) Raichur
   d) Kaiga

41. Wild Life Protection Act in India was passed in
   a) 1978
   b) 1972
   c) 1986
   d) 1992

42. Environment Protection Act was enacted in year
   a) 1986
   b) 1974
   c) 1992
   d) 1984

43. Water Protection Act was enacted in
   a) 1974
   b) 1990
   c) 1985
   d) 2021

44. Blue baby syndrome is caused by the contamination of water due to
   a) Phosphates
   b) Sulphur
   c) Arsenic
   d) Nitrates

45. Which toxic compound is not found in e – waste?
   a) Mercury
   b) Cadmium
   c) Neon
   d) Lead

46. What are the health hazards caused by E – waste?
   a) Lung cancer
   b) DNA damage
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47. The Kyoto protocol was adopted at the
   a) 3rd conference of UNFCC in 1977
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   c) UNFCC in 1992
   d) Convention on Biological diversity

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49. The carbon "credit is permit" representing the right to emit.
   a) One tonne of CO_2
   b) 10 tonnes of CO_2
   c) 5 tonnes of CO_2
   d) 15 tonnes of CO_2

50. Fossil fuels are converted into energy by
   a) Burning
   b) Cooling
   c) Sublimation
   d) Melting

* * * * *