C 82275

(handwritten: Ⅲ B.Voc Soft)

(Pages : 3)

FIRST SEMESTER B.VOC. DEGREE EXAMINATION, APRIL 2020

(CUCBCSS—UG)

Software Development

GEC 1DM 03—DISCRETE MATHEMATICS (BCA 1C02)

Time : Three Hours   Maximum : 80 Marks

Part A (Objective Type)

Answer all the **ten** *questions.*
Each question carries 1 mark.

1. Draw K_5.

2. Write the negation of the statement 'no student is a graduate'.

3. Give an example of two sets A and B such that $A \setminus B = \varnothing$.

4. What do you mean by a conjunction ?

5. A graph in which every vertex is of degree 2 will be a —————————.

6. State Euler's formula for plane graph.

7. Define a spanning tree, give an example.

8. Give an example of a 4 regular graph.

9. Assign a truth value for the statement $5x = 20 \lor 0 > 2$.

10. Calculate the number of elements in the power set of A if $|A| = 6$.

                                            $(10 \times 1 = 10$ marks$)$

Part B (Short Answer Type)

Answer all **five** *questions.*
Each question carries 2 marks.

11. Show that the number of vertices in a self-complimentary graph will be either a multiple of 4 or of the form $4t + 1$.

12. Give an example of a reflexive relation which is neither symmetric nor transitive.

Turn over

13. Construct the truth table for $\sim(p \vee \sim q)$.

14. Define a tree. Is tree a bipartite graph ?

15. Give an example of two non-isomorphic graph on 4 vertices.

(5 × 2 = 10 marks)

Part C (Short Essay)

Answer any **five** *questions.*
Each question carries 4 marks.

16. Prove that a tree with atleast two vertices contains atleast two pendant vertices.

17. Is $\left[(p \vee q) \Rightarrow r\right] \wedge (\sim p) \Rightarrow (q \Rightarrow r)$ a tautology ? Justify your claim.

18. State and prove a characterization theorem for cut edges in a graph.

19. Prove that a simple graph is a tree if and only if any two distinct vertices are connected by a unique path.

20. Let G be a graph in which the degree of every vertex is at least 2. Show that G contains a circuit.

21. Find number of elements in the union of A and B if $|A| = 4, |B \setminus A| = 5$. Draw the corresponding Venn diagram.

22. Show that in any group of two or more people there are always two with same number of friends in the group.

23. Illustrate boolean algebra with an example.

(5 × 4 = 20 marks)

Part D

Answer any **five** *questions.*
Each question carries 8 marks.

24. Write short notes on (a) Network ; (b) Max-flow min-cut theorem.

25. Give a short note on Chinese postman problem.

26. Prove that a connected graph G with n vertices is a tree if and only if it has $n - 1$ edges.

27. Show that a graph has a dual if and only if it is planar.

28. Define Euler graphs and prove a necessary and sufficient condition for a connected graph to be Euler.

29. (a) Prove or disprove the formula : $|A \cup B| = |A| + |B| - |A \cap B|$.

    (b) Write the conjunctive normal form of : $(q \vee (p \wedge r)) \wedge \sim ((p \vee r) \wedge q)$.

30. Prove that a graph is bipartite if and only if it contains no odd cycles.

31. Let G be a simple graph with $n \geq 3$ vertices. If for every pair of non-adjacent vertices u, v of G $d(u) + d(v) \geq n$, show that G is Hamiltonian.

$(5 \times 8 = 40 \text{ marks})$

C 82235   (Pages : 4)   Name....Sandhya: S..........

Reg. No...STATBVW033

FIRST SEMESTER B.VOC. DEGREE EXAMINATION, APRIL 2020

(CUCBCSS—UG)

English

GEC 1EG 01—TRANSACTIONS : ESSENTIAL ENGLISH LANGUAGE SKILLS

(2019 Admissions)

Time : Three Hours   Maximum : 80 Marks

Part 1 (Speaking Skills)

I. Read the following questions and do as directed. All questions can be answered. (Ceiling 20) :

Each question carries 2 marks.

1 You want to spend some time with the inhabitants in an orphanage. How will you suggest this to your friends ?

2 You forgot to post a letter which was entrusted to you by your friend. Express your regret *using should have.*

3 *Sure but later* is a reply to a telephone call. Frame a suitable question used in telephonic English for this reply.

4 Rearrange the given jumbled sentence to get the correct expression used for soft disagreement, opinion / many issues / Grasp / you / there are / I respect / could not / your / however / that.

5 Identify the vowel sounds in *Chart* and *Poor* and categorise them as monophthong or diphthong.

6 Identify the sounds of the underlined letters in <u>*Jeep*</u> and <u>*Through*</u> and transcribe them.

7 *I had spoken to them about my holiday.* Rewrite the sentence correctly. Justify your corrections.

8 *I would like to travel with my best friend, Kim.* Frame a "Wh" question for this sentence.

9 We should not waste our time watching TV. Identify the verb and helping verb in the sentence.

10 *Students are dishing out leaflets to passers-by.* Identify the phrasal verb in the sentence and write its meaning.

11 Her house is just <u>*very near*</u>. Write the idiomatic expression for the underlined words.

12 *I wasn't just <u>disappointed</u>, I was absolutely shattered.* Write the meaning of the underlined word in the given sentence.

Turn over

II. Read the following questions and do as directed. All questions can be answered. (Ceiling 30)

Each question carries 5 marks :

13 Prepare a short telephonic conversation in which phrases like *I'm afraid, hang on, speaking* etc. occur.

14 Elucidate the way in which the given words differ in articulation and meaning. Support your answers with examples.

      Contest (N) & *Contest* (V)

      Insult (N) & *Insult* (V)

15 Each given sentence has one word missing. Write it in and justify your answer :

      Children not play hockey on Mondays.

      The Calicut bus stop here ?

16 Reorder the given sentences and identify the tense in them

      students /at/ their / sitting/ right now /the / desks /are

      Rajesh / television / night / watched / last

17 Choose one phrasal verb and use it in two sentences of yours.

18 Choose one idiom and use it in two sentences of yours. *Toy with/count on.*

      Lock horns/Pour your heart to somebody

19 The sentences below consist of some grammatical mistakes. Identify the mistakes and rewrite them correctly. Justify your corrections.

      I Write to my friend in New Zealand every month. She live on a big farm near the mountains.

      Diana is a nurse at the local children's hospital. She's been looking after sick kids.

III. Read the following questions and answer any one of the following.

20 Make up a reasonably long dialogue which contains expressions used for polite requests/ persuations/suggestions and their responses.

      Speakers :   Jyothilakshmi and Sudheer.

      Situation: For the selection of a theme for the mime performance, Jyothilakshmi wants the theme of 'child abuse' and Sudheer wants 'women and society'.

                                  (1 × 10 = 10 marks)