



UNIVERSITY OF NORTH BENGAL
B.Sc. Honours 1st Semester Examination, 2020

GE1-COMPUTER SCIENCE

Full Marks: 60

ASSIGNMENT

The figures in the margin indicate full marks.

**The question paper contains GE 1A and GE 1B.
The candidates are required to answer any *one* from *two* courses.
Candidates should mention it clearly on the Answer Book.**

GE 1A

DIGITAL ELECTRONICS

Answer any *three* questions from the following

20×3 = 60

1. (a) What are the different generations of computers? Explain their features and properties. 10
(b) Explain the advancements made through different generations of computer Languages. 10
2. (a) Explain the Von Neumann Architecture with the help of a diagram. 7
(b) Explain the role of integrated circuits in design of computers. 3
(c) Also, explain the classification of computers on the basis of technology. 10
3. (a) State and prove the De-Morgan's laws and Consensus theorem using Boolean algebra. 10
(b) Design logic circuits for the following Boolean expressions and find their truth tables: 10
 - (i) $(ab' + c).(a' + bc)' + (a + b'.c')$
 - (ii) $(x' + y).(y' + z).(y + (z'.x'))'$
4. (a) Simplify using K-Map : $f(A, B, C, D) = \sum m(2,3,4,5,7,8,10,13,15)$ 4
(b) Simplify using boolean algebra : $abc'd + ab'c + bc'd + ab'c' + acd + a'bcd$ 4
(c) Explain the principal of duality with example. 2
(d) Explain minterm, maxterm, SOP, POS, canonical form with examples. 10

5. Write short notes on the followings: 5×4 = 20
- (a) Language Translators
 - (b) Hardware, Software and Firmware
 - (c) Memory devices and their classification
 - (d) Universal Gates.

GE 1B

COMPUTER NETWORKS

Answer any *three* Assignments from the following

20×3 = 60

1. Discuss the functions of various layers in TCP/IP reference model. 20
2. What is topology? Discuss different types of topologies. Explain the advantages and disadvantages of various types of topologies. 2+10+8
3. Explain optical fibre with the help of suitable diagram in details. 2+18
4. Explain Hamming code with the help of a suitable example. 20
5. What is a switch? Discuss circuit switching technology? Explain different variations of circuit switches. 2+10+8
6. What is multiplexing? Explain FDM and TDM in details. 2+18

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