17517

16117

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : *(1)* ***All*** *questions are* ***compulsory****.*

(2) Answer ***each*** *next main question on a* ***new*** *page.*

(3) Illustrate your answers with ***neat*** *sketches* ***wherever*** *necessary.*

(4) Figures to the ***right*** *indicate* ***full*** *marks.*

(5) *Assume suitable data, if* ***necessary****.*

(6) Use of non-programmable Electronic Pocket Calculator is ***permissible****.*

(7) Mobile Phone, Pager and any other Electronic Communication devices are ***not*** *permissible in Examination Hall.*

Marks

1. a) Attempt **any three** : **(3×4=12)**

1) State and explain the functions of loader.

2) What are the four components of system software ?

3) Describe the steps of design for assembler.

4) What must the compiler do in order to produce the machine language equivalent of WCM ?

b) Attempt **any one** : **(1×6=6)**

1) Explain the foundation of system programming.

2) Explain macro instructions with the help of its structure and example.

2. Attempt **any two** : **(2×8=16)**

1) Draw and explain the flowchart for pass-I of assembler.

2) What is the need of searching and sorting techniques in system programming ? Elaborate your answer in detail.

3) Draw the structure of complier and explain it.

P.T.O.

Marks

3. Attempt **any four** : **(4×4=16)**

1) Elaborate the evolution of operating systems.
2) Apply linear search on following numbers and search the number 15 from it
   1, 3, 7, 9, 11, 13, 15, 19, 21
3) Explain syntax analysis with the help of example.
4) Explain compile and go loader.
5) Explain the meaning of top down and bottom up parser.

4. a) Attempt **any three** : **(3×4=12)**

1) Explain four cards in the object desk of assembler i. e. ESD, TXT, RLD and END.
2) Generate the parse tree for following expression.
   Cost = Rate $*$ (start – finish) + 2 $*$ Rate $*$ (start – finish) – 100
3) Write the matrix for following example :
   Cost = Rate $*$ (start – finish) + 2 $*$ Rate $*$ (start – finish – 100)
4) Explain the concept of top down parser.

b) Attempt **any one** : **(1×6=6)**

1) Explain conditional macro expansion with the help of example.
2) Compare advantages and disadvantages of top down and bottom up parser.

5. Attempt **any two** : **(2×8=16)**

1) What are the specifications of data structures and formats of data bases used indirect linking loader ?
2) Explain code generation phase of compiler with respect to databases and algorithms.
3) Apply interchange sort on following numbers :
   43, 25, 37, 12, 67, 96, 40, 9

6. Attempt **any four** : **(4×4=16)**

1) Explain a single pass algorithm for macro processor.
2) Illustrate the algorithm for hash search.
3) What are the uses of binders, linking loader overlays and dynamic binders ?
4) Explain storage allocation concept in compiler.
5) Explain the concept of subroutine linkages.

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