2021
MATHEMATICS – GENERAL
SEMESTER-4
INTERNAL ASSESSMENT
Full Marks of each Course: 10

The figures in the margin indicate full marks.
Symbols and notations used here carry their usual meaning.
Candidates are required to give their answers in their own words as far as practical.

Course: CC4/GE4

Choose the correct alternative: 5x2=10

1) The exact binary representation of the number $(0.6875)_{10}$ is
   a) $(0.1010)_2$
   b) $(0.1011)_2$
   c) $(0.10110)_2$
   d) $(0.10111)_2$

2) To indicate input/output operations in Flowcharts we use a-
   a) Parallelogram shaped box
   b) Oval shaped box
   c) Rectangle shape box
   d) None of these

3. In a normal curve the ordinate is highest at:
   a) Mean b) Variance c) Standard deviation d) at any arbitrary point

4. A coin is tossed up four times. The probability that tails turn up in three cases is
   a) 1/3 b) 1/2 c) 1/4 d) 1/6

5. If a and b be two distinct elements of order 2 in a commutative group G, then order of ab is
   a) 0 b) 1 c) 2 d) none of these

Course: SEC-B(Mathematical Logic)

Choose the correct alternative: 5×2=10

6. Simplification of the function $f(x,y,z) = x(yz' + yz)$ is
   a) xy
   b) $x'y'$
   c) $x'y$
   d) xy'
7. A Boolean function f is defined by $f(x,y,z) = xy + yz + zx$.The conjuction normal form of $f(x,y,z)$ is-
   a) $f(x,y,z) = (x+y+z)(x+y+z')(x+y'+z)(x'+y+z)$
   b) $f(x,y,z) = (x'+y'+z')(x+y+z')(x+y'+z)(x'+y+z)$
   c) $f(x,y,z) = (x+y+z)(x+y'+z')(x'+y'+z)(x'+y+z')$
   d) $f(x,y,z) = (x'+y'+z')(x+y'+z')(x'+y'+z)(x'+y+z')$

8. $A \vee \sim A$ is
   a) T
   b) F
   c) Neither T nor F
   d) Both T and F
9. A valuation is a mapping from the set of propositional variable to the two element set
   a) {T,T}
   b) {T,F}
   c) {F,F}
   d) None of these
10. The disjunction of p and q is denoted by
   a) p∨q
   b) p∧q
   c) p→q
   d) None of these