JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Test-2 EXAMINATION- April 2018

M.Tech.(ECE), 4th Sem

COURSE CODE: 11M1WEC433   MAX. MARKS: 25

COURSE NAME: Fault-Tolerant Systems

COURSE CREDITS: 03   MAX. TIME: 1.5 hr.

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1. Define and explain the following terms with example of each:

(i) Graph, (ii) Path, (iii) Loop, (iv) Circuit,   (v) Connectedness, (vi) Degree of node

(3)

Q2. Explain the method of evaluating reliability and capacity related reliability using the method of exhaustive state enumeration   (5)

Q3. Write and explain the following algorithms for finding the shortest distance in a network:

(i) Dijkstra algorithm

(ii) Bellman-Ford algorithm

Give the comparison also.

Q4.

Q4. Describe the operating principle of dynamometer-type instrument. Why it has square-law response? (3)

Q5. Sketch a CRT with electric focussing and deflection system. What are its main parts? Give the function of each part. (4)

Q6. A stepper motor has a step angle of 1.8° and is driven at 4000 pulse per second. Determine (*a*) the resolution, (*b*) the speed, (*c*) the number of pulses needed to rotate the shaft by 54°. (3)

Q7. What is transducer? Explain various inductive transducers. (5)

Q8. The voltage generated by a circuit is equally dependent on the value of three resistors given by $V = \frac{R_1}{R_2 R_3}$. If the tolerance of each resistor is 0.2 percent, compute the maximum and minimum error of the generated voltage. (3)