TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY
(BTIT 11M)
EIT 4419: OPTICAL FIBRE COMMUNICATION SYSTEMS

END OF SEMESTER EXAMINATION
SERIES: AUGUST 2013
TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer Booklet*

This paper consists of **FIVE** questions. Attempt question **ONE** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

Question One (Compulsory)

a) Describe with the aid of sketch the optical connection wavelength routing **(4 marks)**

b) Distinguish between transparent and opaque switches **(4 marks)**

c) Describe the following SONET/SDH standards terms:
   (i) Section overhead
   (ii) Line overhead
   (iii) Path overhead **(6 marks)**

d) Describe Automatic protection switching APS **(4 marks)**

e) Describe any **FIVE** challenges to multicasting in optical fibre communication systems

(10 marks)

f) Outline **TWO** optical network topologies **(2 marks)**

Question Two

a) Describe a wavelength routing network with the aid of a sketch. **(10 marks)**

b) Describe how you would ensure channel sharing in optical fibre networks **(10 marks)**

Question Three

Discuss how one would ensure protection of optical network against failures **(20 marks)**

Question Four

a) Distinguish between optical packet switched networks and optical burst switched networks.

(10 marks)

b) Compare and contrast Routing and wavelength Assignment (RWA) and wavelength conversion.

(10 marks)

Question Five

An organization wishes to improve their services by coming up with an impairment – aware routing

Required:

Discuss how the organization can achieve their mission **(20 marks)**