UNIVERSITY OF JOHANNESBURG

FACULTY OF ENGINEERING AND BUILD ENVIRONMENT

DEPARTMENT OF QUALITY AND OPERATIONS MANAGEMENT

MAIN EXAMINATION

PROGRAMME	:	NATIONAL DIPLOMA: OPERATIONS MANAGEMENT
SUBJECT	:	OPERATIONS MANAGENENT 3
CODE	:	BPJ33A3
DATE	:	6th June 2014
TIME	:	8h30
DURATION	:	3 HOURS
WEIGHT	:	50:50
TOTAL MARKS	:	101
NUMBER OF PAGES	:	3 (including cover page)
EXAMINERS	:	DR. P. KHOLOPANE
MODERATOR	:	Prof. T. TENGEN

INSTRUCTIONS:

ANSWER ALL QUESTIONS IN PROVIDED ANSWER BOOKS AND ENSURE THAT YOUR STUDENT NUMBER APPEARS ON ALL THE WORK THAT YOU HAND IN. THIS IS AN OPEN BOOK ASSESSMENT

REQUIREMENTS : ANSWER SCRIPTS; CALCULATOR.

Question 1 [5]
Mention five disadvantages of run to failure.

Question 2 [8]
Name and discuss four elements into which Preventive maintenance procedures is divided.

Question 3 [6]
There are three areas to evaluate in order to improve your shutdown maintenance i.e. a) timing, b) Shutdown scale and c)Planning and scheduling. Please explain these with examples.

Question 4 [5]
Explain Goals of Risk Management in your own words

Question 5 [5]
Explain Basic Statistical Control process in your own words. Explain how this process can be used to control and to maintain a set of units e.g. weights or volume that can potentially go wrong.

Question 6 [10]
Front-line management are considered to be the backbone of the company as they are in direct contact of the workers and contribute important functions within a company. Name participants in this level and explain their activities within a work environment.

Question 7 [10]
Name 5 Components of a Safety Management System and explain each of them.

Question 8 [10]
Discuss APPLICATION INTERFACE as it was explained in class with examples.

Question 9 [5]
Name 5 of the 9 Elements of effective maintenance management .

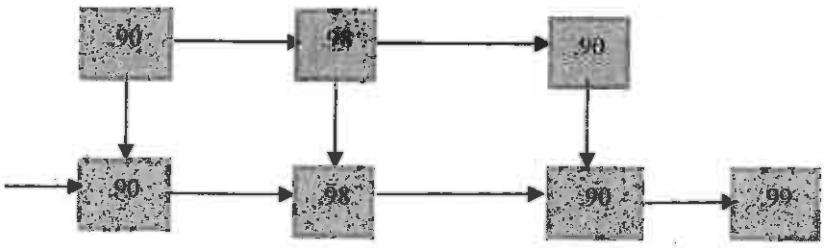
Question 10 [8]
Name and discuss four process of carrying out workload planning:

Question 11 [5]
Explain Goals of Risk Management in your own words.

Question 12 [5]
Explain processes or steps involved in the store department e.g what happens when you make material requisition in government store.

Question 13 [3]
A product has three components X, Y, and Z. X has reliability of 0.991; Y has reliability of 0.993. If Z has reliability of 0.991, what is the reliability of the entire product? Can Z be redesigned to be reliable enough for the entire product to have reliability of 0.99? Explain.

Question 14 [8]
What is the reliability of the following system?



Question 15 **[8]**

Given the following, 15 circuit breakers subjected to 80 hours of testing each. Halfway through the testing, 3 circuit breakers failed. What was the following?

a. Percentage of failures
b. Number of failures per unit –hour
c. Number of failures per unit-year
d. If 20 motors receive circuit breakers installations, how many motors can we expect to fail during the following year.

Formulae

Percentage failures [FR%] = Number of failures / Number of units tested x 100
Number of failures per unit hour [FR(N)]
FR(N)= number of failures/ Total tine – Non operating time
Number of failures per unit year = FR(N)x 24hrs x 365 days

Series $R_S = R_1 \times R_2 \times R_3$

Parallel $= [1 - (1-R_C)(1-R_E)]$