FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT
EXAM

DEPARTMENT	:	QUALITY AND OPERATIONS MANAGEMENT
MODULE	:	PRODUCTION PLANNING AND CONTROL 1A
CODE	:	BPH11A1
DATE	:	09 JUNE 2016
DURATION	:	3 HOURS
TIME	:	08:30 – 11:30
TOTAL MARKS	:	100

EXAMINER	:	MS K MUSHAVHANAMADI
EXTERNAL MODERATOR:		MR S MOKOELE
NUMBER OF PAGES	:	6 PAGES
REQUIREMENTS	:	SCANNER SHEETS

INSTRUCTIONS TO CANDIDATES:

- Answer ALL questions.
- This is a closed book assessment.
- Leave margins and spaces between the questions.
- Show all your calculations.
- Unless otherwise indicated, express your answers correctly to two (2) decimal places.
- Where appropriate, indicate the units of your answer. (e.g. Hour, R)
- Write neatly and legibly
- NOTE: Marks will be awarded for theoretical knowledge, application of the theory and use of relevant examples.
- The general University of Johannesburg policies, procedures and rules pertaining to written assessments apply to this examination.

SECTION A: MULTIPLE CHOICE	30 MARKS

1) Which of the following best describes mutual commitment in an organization?
A) An instance in which management is committed to the employees and the employees are committed to management.
B) Both management and the employees are committed to the same objective.
C) Both management and the employees are committed, but to different objectives.
D) Management obtains the commitment of the employees to a stated objective.
E) Both management and the employees can rely on each other.

2) Mutual trust is …
A) When employees have gained the trust of management.
B) Reflected in reasonable, documented employment policies, honestly and equitably implemented to the satisfaction of both management and the employees.
C) When management has gained the trust of the employees.
D) When management recognizes that the employees are competent, motivated people both able and willing to perform at the level required to produce a quality product.
E) When management and the employees both agree on the objectives.

3) The objective of a human resource strategy is to …
A) Produce the demand forecast at lowest labour cost
B) Match employment levels with demand
C) Achieve a reasonable quality of work life at low cost
D) Manage labour and design jobs so people are effectively and efficiently utilized
E) all of the above

4) A manufacturing plant allows its engineers to come in at 7 a.m. plus or minus an hour, but still requires them to work 8 hour days. Which of the following scheduling techniques is the firm employing?
A) Flextime
B) Constant employment
C) Part-time status
D) Flexible workweek
E) Compressed workweek

5) Working 4 shifts of 10 hours instead of 5 shifts of 8 hours each is known as …
A) Flextime
B) Constant employment
C) Part-time status
D) Flexible workweek
E) None of the above

6) Four of the components of job design are:
A) employment stability; work schedules; work sampling; motivation and incentive systems
B) job specialization; job expansion; psychological components; and self-directed teams
C) labour specialization and enrichment; motivation and incentive systems; employment stability; and work sampling
D) ergonomics and work methods; method time measurement; work schedules; and incentive systems
E) labour specialization; time studies; work sampling; and pre-determined time standards

7) Job rotation is an example of ...
A) Job enrichment
B) Job scheduling
C) Job training
D) Job enlargement
E) Job incentive

8) The behavioural approach to job design that involves giving the worker a larger portion of the total task is ...
A) Job enlargement
B) Job enrichment
C) Job enhancement
D) Job rotation
E) Job involvement

9) The difference between job enrichment and job enlargement is that:
A) enlarged jobs involve vertical expansion, while enriched jobs involve horizontal expansion
B) enriched jobs enable an employee to do a number of boring jobs instead of just one
C) job enlargement is more psychologically satisfying than job enrichment
D) job enrichment is suitable for all employees, whereas job enlargement is not
E) enriched jobs involve vertical expansion, while enlarged jobs involve horizontal expansion

10) Which of the following is not an element of the management process?
A) Controlling
B) Leading
C) Planning
D) Pricing
E) Staffing

11) An operations manager is **not** likely to be involved in ...
A) the design of goods and services to satisfy customers' wants and needs.
B) the quality of goods and services to satisfy customers' wants and needs.
C) the identification of customers' wants and needs.
D) work scheduling to meet the due dates promised to customers.
E) maintenance schedules.

12) Which of the following is the best example of a pure service?
A) Counselling
B) Oil Change
C) Heart transplant
D) Electric Co-Op
E) All of the above

13) Which of the following services is least **likely to be unique**, i.e., customized to a particular individual's needs?
A) Dental care
B) Hairdressing
C) Legal services
D) Elementary education
E) Computer consulting

14) Which is **not** true regarding differences between goods and services?
A) Tangible goods are generally produced and consumed simultaneously; services are not.
B) Most goods are common to many customers; services are often unique to the final customer.
C) Services tend to have a more inconsistent product definition than goods.
D) Services tend to have higher customer interaction than goods.
E) All of the above are true.

15) Which of the following attributes is most typical of a service?
A) Production and consumption occur simultaneously
B) Tangible
C) Mass production
D) Consistency
E) Easy to automate

SECTION B: OPERATIONS AND PRODUCTIVITY   15 MARKS

1) A local university is considering changes to its class structure in an effort to increase professors' productivity. The old schedule had each professor teaching 5 classes per week, with each class meeting an hour per day on Monday, Wednesday, and Friday. Each class contained 20 students. The new schedule has each professor teaching only 3 classes, but each class meets daily for an hour. New classes contain 50 students.

   a. Calculate the labour productivity for the initial situation (students/hour).   (4)
   b. Calculate the labour productivity for the schedule change (students/hour).   (4)
   c. Suppose that each teacher also is required to have 2 hours of Office Hours each day, he/she taught class. Is the schedule change a productivity increase?   (7)

SECTION C: THE GLOBAL ENVIRONMENT   20 MARKS

1) Nike is the world's largest athletic brand. Its innovative and broad product line helps drive sales, however a large majority of those sales are in the footwear business. Most of Nike's goods are produced overseas in low-cost factories and then imported to the final market. Nike currently has many of the top U.S. athletes under contract (Michael Jordon, Tiger Woods, and Dwayne Wade) but international sales are still small in emerging markets. However, many competitors have attempted to copy Nike's business model (high-value branded products manufactured at low-cost), including Adidas and Reebok, while many retailers have attempted to pass on the low-cost pressure of retail consumers.

Perform a SWOT analysis for Nike.   (20)

SECTION D: LOCATION DECISIONS   5 MARKS

1) Identify five factors that affect location decisions at the site level.   (5)

SECTION E: FORECASTING DEMAND   **30 MARKS**

FORECASTING AT PREMIER MOP AND BROOM CASE STUDY

For over 70 years, Premier Mop and Broom has provided its customers with exceptional service and quality products. The company make all of their products here in the R.S.A. and only with environmentally friendly materials. Their moto: "*Thank you for giving us the opportunity to serve you*". The company operate from Centurion in Gauteng, South Africa. The company's product line is extensive and includes products in many categories of the cleaning industry. These include mop heads, dust mops, handles, upright brooms, push-brooms, brushes, squeegees and various specialty items. Recently, Premier Mop and Broom updated its "Micro-Hygienic" selection of Microfiber products as well as an assortment of "environmentally-friendly" items that underscore the company's commitment to "green cleaning".

Over the past 5 years the company decided to introduce a new product, the *Mopper*, to its South African market. The production manager at Premier Mop and Broom, Mr. Oratile Rifhemaanda Mushavhanamadi, needs to ensure that his factory's capacity should be constant (Level capacity strategy) at all times. In order to make this strategy successful, he pulled the number of units of the *Mopper* sold over the past 24 months. This is shown in the Table 1 below (Sales figures are in thousand, no need to change them to thousands by adding zeros):

Month	Sales (x1000)	Month	Sales (x1000)	Month	Sales (x1000)
1	239	9	310	17	369
2	248	10	335	18	378
3	256	11	348	19	367
4	260	12	353	20	383
5	271	13	355	21	394
6	280	14	368	22	393
7	295	15	379	23	405
8	305	16	358	24	412

As part of his request to you, he wants you to do the following:
a) Given the sales data in Table 1, using a six-period and a three-period moving average, generate forecasts for months 7 to 24. (10)
b) Given the sales data in Table 1, using α value of 1.03, generate forecasts from months 7 to 24 with an initial forecast for month 6 of 279 with exponential smoothing. What can you say about this forecast? Why? (5)
c) Use MAD to compare the forecasts. Which forecast will you recommend and why? (15)

END OF ASSESSMENT – GOOD LUCK

TOTAL MARKS   **100**