FACULTY OF ENGINEERING AND BUILT ENVIRONMENT

JUNE EXAMINATION 2014

DEPARTMENT	**DEPARTMENT OF QUALITY AND OPERATIONS MANAGEMENT**
PROGRAMME	ND MANAGEMENT SERVICES ND OPERATIONS MANAGEMENT
MODULE	ORGANISATIONAL EFFECTIVENESS 2A
CODE	OEF22A2
DATE	19 JUNE 2014 EXAMINATION
DURATION	3 HOURS
TOTAL MARKS	100

EXAMINER	MR V. LUKONGA
MODERATOR	MIS. M. NEMARUMANE
NUMBER OF PAGES	4 PAGES

INSTRUCTIONS TO CANDIDATES:

- Please answer all questions.
- Calculators are allowed
- Question papers must not be handed in.
- This is a closed book assessment.
- Read the questions carefully and answer only what is asked.
- Number your answers clearly.
- Write neatly and legibly.
- Structure your answers by using appropriate headings and sub-headings.
- The general University of Johannesburg policies, procedures and rules pertaining to written exam apply.

...Cont/

QUESTION 1

Horizon is a huge company making computers of different types of colours within the different department in the company (Black department, Red Department, Blue department, Green department, Purple department and white department). Each department has its own manager, once in a month they all sit down to check how productive are their department compared to others. The company has been operating for the past three years and in those years of production they manage to make 550 000 computers @ R560. This year some departments have been having problems with reaching their target of at least 91600 computers. The common problems are delay of material, workers absent, machine breakdown, workers late, delay in packaging, incompetency of workers, incompetency of supervisors, shortage of equipment, weak administration of information and unpleasant working environment. In March 2012 the board of the company asked all managers/department to present their results for productivity check.

The results were as follows: Black Department had produced 85500@R60 the report on the number or problems was also recorded - delay of material 14, workers absent 14, machine breakdown 9, workers late 29, delay in packaging 21, incompetency of workers 31, incompetency of supervisors 7, shortage of equipments 6, weak administration of information 19 and unpleasant working environment 11. Red department 91200@ R65 with a record of delay of material 16, workers absent 14, machine breakdown 10, workers late 27, delay in packaging 19, incompetency of workers 25, incompetency of supervisors 4, shortage of equipments 9, weak administration of information 21 and unpleasant working environment 9. Blue department 92550@R67 the report on the number or problems was also recorded - delay of material 13, workers absent 12, machine breakdown 5, workers late 23, delay in packaging 21, incompetency of workers 29, incompetency of supervisors 7, shortage of equipments 9, weak administration of information 16 and unpleasant working environment 14. Green department 86200@R61 the report on the number or problems was also recorded - delay of material 16, workers absent 14, machine breakdown 13, workers late 29, delay in packaging 20, incompetency of workers 33, incompetency of supervisors 9, shortage of equipments 4, weak administration of information 17 and unpleasant working environment 15. Purple department 90500@R60 the report on the number or problems was also recorded - delay of material 15, workers absent 13, machine breakdown 9, workers late 31, delay in packaging 23, incompetency of workers 32, incompetency of supervisors 6, shortage of equipments 7, weak administration of information 21and unpleasant working environment 11. White department 85500@R62 the report on the number or problems was also recorded - delay of material 14, workers absent 14, machine breakdown 9, workers late 29, delay in packaging 21, incompetency of workers 31, incompetency of supervisors 7, shortage of equipments 6, weak administration of information 19 and unpleasant working environment 11. Both departments had the same number of staff used same type of equipment and materials but they differed on utilizing the above inputs. Department Purple and Red use the same amount of material: 1km of wires @ R12, 2.6 kg of plastic@ R9, 820 grams of glue@ R13 and 32 millilitres of ink @R 11. As for Black department 1.1km of wires @ R10, 2.4 kg of plastic@ R11, 920 grams of glue@ R14 and 31 millilitres of ink @R 11. White department 1km of wires @ R11, 2.7 kg of plastic@ R10, 795 grams of glue@ R12 and 36 millilitres of ink @R 12. Blue department 1 km of wires @ R13, 2.2 kg of plastic@ R7, 860 grams of glue@ R13 and 34 millilitres of ink @R 12. Green 1km of wires @ R12, 2.6 kg of plastic@ R9, 820 grams of glue@ R13 and 32 millilitres of ink @R 11.

Three workers were observed from all the departments in department Green and Red: worker 1 was 320@R 25, worker 2 was 360@ R30 and worker 3 was 555@ R42. Blue

department - worker 1 was 335@R 27, worker 2 was 340@ R26 and worker 3 was 595@ R43. Black department worker 1 was 330@R 25, worker 2 was 375@ R35 and worker 3 was 565@ R44.
White department worker 1 was 335@R 24, worker 2 was 365@ R35 and worker 3 was 560@ R45. Purple department worker 1 was 327@R 26, worker 2 was 364@ R33 and worker 3 was 561@ R42. Two machines were used in each department except in Green department were they had three machines: machine A was 890 @ R98, machine B 1110@ R110 and machine C 400@R 65. Blue department was – machine A was 860@R102, machine C 490@R 72. Red department was – machine A was 850@R99, machine C 502@R 74. White was – machine A was 880@R103, machine C 490@R 74. Purple was – machine A was 859@R101, machine C 488@R 71. Black was – machine A was 895@R99, machine C 490@R 72

QUESTION 1

1.1   You are the work study personal assigned to help department black with their productivity. Calculate the productivity for department black and department of red, using cost value of department blue for black department.

- SRP   (18)
- PI of SRP   (9)
- TRP and PI of TRP   (14)

1.2   Use the case study above to Draw the Pareto analysis for department purple and explain the results.
- Draw a table with all activities to show percentage and cumulated percentage.   (5)
- Draw Pareto: 80/20 chart.   (7)

[53]

QUESTION 2

You are the Project manager on a construction project and you are asked to estimate the time the project can finish.

ACTIVITIES	Predecessors	Duration (days)
A	-	20
B	A	30
C	A	40
D	B	50
E	C	10
F	A, C	40
G	E	20
H	F	30
I	D, G, H	20

2.1. Draw a Gantt chart to show the relationship of activities   (5)
2.2. Show the duration of the activities   (9)
2.3. Which elements will be complete after 60 days?   (2)

[16]

QUESTION 3

ACTIVITY	DESCRIPTION	PREDECESSORS	TIME (Weeks)
A	Build internet components	-	2
B	Modify roof & floor	-	3
C	Construct collection stack	A	2
D	Pour concrete & install frame	B	4
E	Build high-temperature burner	C	4
F	Install pollution control system	C	3
G	Install air pollution device	D,E	5
H	Inspect and test	F,G	2

3.1. Draw a network to show the relationship of activities   (5)
3.2. Calculate the ES, EF, LS, LF, SLACK, and CP   (24)
3.3. What is critical path? Which elements are parts of CP?   (2)

[31]

Total: [100]

- - - oOo - - -