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FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI
SCHOOL OF ENGINEERING AND ENGINEERING TECHNOLOGY,
DEPARTMENT OF MECHANICAL ENGINEERING
2017/2018 HARMATTAN SEMESTER EXAMINATIONS

COURSE: IPE 403 . (WORK STUDY & PRODUCTIVITY)
INSTRUCTION: Answer any five Questions.

TIME: 3 HOURS

1. (a) Make a sequential presentation on how you can install a productivity improvement scheme in any specific organisation.
 (b) How would you carry out a productivity audit in the department of Mechanical Engineering, Federal University of Technology Owerri?

2. Write short notes on any five of the following variables.

- Reliability -
- Maintainability → ability to carry out maintenance work on
- Availability of Inputs → number of input required to produce
- Efficiency → capacity of a machine to do required work
- Effectiveness and → means positive contributions
- Service delivery - ability to render a particular service as it expected

3. As a productivity Auditor, how would you improve

- (i) Labour Productivity
- (ii) Waste reduction
- (iii) Equipment productivity in a named manufacturing organisation.

4. What is work study? List out the objectives of work study and itemise the basic procedures.

5. Using any productivity model, calculate the maintenance productivity of a machine shop with 30 milling machines and 15 Lathe for only 10 operators who can work on two machines per day.

6. With the aid of a schematic diagram, how would you relate productivity to work study? Explain only two (2) concepts in each case.

7. Discuss the following terms:

- (i) Productivity
- (ii) Work Measurement
- (iii) Ergonomics
- (iv) Value Analysis

(b) How can you improve productivity in a manufacturing company?

It is an analysis carried out with...

165
105
270

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DEPARTMENT OF MECHANICAL ENGINEERING
2018/2019 HARMATTAN SEMETER EXAMINATION

COURSE CODE: IPE 403. COURSE TITLE: WORK STUDY AND PRODUCTIVITY.

INSTRUCRION: Answer ANY Five (5) Questions.

1. What is work study? List out the objectives of work study and itemize the basic procedures for all the techniques.
2. (i). With the aid of a schematic diagram, how would you relate Productivity to work study?
(ii) Explain only three (3) basic concepts in each case.
3. As a Productivity Auditor, how would you improve:
 - d. Labour productivity,
 - e. Waste reduction, and
 - f. Equipment productivity in any named Organization.
4. (a) Explain any two internal and three external factors that affect the productivity of a manufacturing industry.
(b) Suggest any four ways of improving the productivity of a named manufacturing industry.
5. (a) Explain any four techniques of work measurement (b) Enumerate four qualities of a work-study man (c) State two objectives of work measurement.
6. (a) Write short notes on the following (i) Basic work content ii Excess work content (iii) Job element iv contingency allowance
(b) Give four reasons for breaking jobs into elements.

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COURSE TITLE: WORK STUDY AND PRODUCTIVITY TIME: 3HRS
COURSE CODE: IPE 403
INSTRUCTION: ANSWER FIVE (5) QUESTIONS IN ALL

1. (a) Define ergonomics and state its purpose
(b) State five objectives of ergonomics
(c) Explain the following related sciences of ergonomics
 - i. Anthropology
 - ii. Physiology
 - iii. Anatomy
 - iv. Phycology
2. (a) What is fatigue?
(b) Explain the two types of fatigue
(c) State any five causes of fatigue
(d) Explain the effects of fatigue on Labour Productivity and state how it can be reduced.
3. (a) Define job element
(b) State four reasons for breaking jobs into elements
(c) Explain any four types of job elements. Give example in each case.
4. (a) Using any named industry in Nigeria, how would you differentiate between partial and total productivity
(b) Who is a productivity auditor? Explain.
5. How would you carry out five (5) steps in each case for methods study and work measurement procedures.
6. With the aid of a well-labeled diagram, show the relationship between work study, and Productivity in a Bottling Company.
7. Write short notes on the following:
 - i. Maintainability of a named equipment
 - ii. Reliability
 - iii. Availability
 - iv. Efficiency
 - v. Effectiveness
 - vi. Productivity audit

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