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

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

With Perlers

18 8 TIME: 3 HOURS

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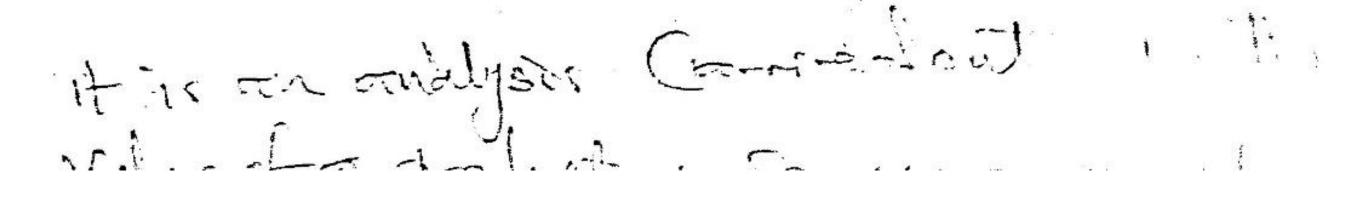
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(a) Make a sequential presentation on how you can install a productivity improvement scheme in any specific organisation.
 (b) How would you carry out a productivity audit in the department of Mechanical Engineering, Federal University of Technology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

Write short notes on any five of the following variables. - Maintainability -> ability to carry out maintenance work on - Availability of Inputs -> minutor of import required out put -1 It ibih output - Efficiency -> Capacety of machine to do required wi achuild C. Lorna as monthly assive desirable - Effectiveness and -> income for thire 'Contributions - Service delivery - ability to reader a prost-scular Service Tes it el Thirle . 15) Cr Frede Le.C 3. As a productivity Addition, note Sould , an impresso 61 Labour Productivity Waste reduction Equipment productivity in a named manufacturing organisation. (ii) What is work study? List out the objectives of work study and itemise die basic procedures. Using any productivity model, calculate the maintenace productivity of a machine shop with 30 milling machines and 15 Lathe for only 10 operators who can work on two machines per day. With the aid of a schematic diagram, how would you relate productivity to work study? Explain only two (2) concepts in each case. Aiscuss the following terms: Productivity Work Measurement Ergonomics (iii) Value Analysis (iv) (b).



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FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI DEPARTMENT OF MECHANICAL ENGINEERING 2018/2019 HARMATTAN SEMETER EXAMINATION COURSE CODE: IPE 403. COURSE TITLE: WORK STUDY AND PRODUCTIVITY. INSTRUCTION: 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.
- (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,

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- 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 workstudy 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.

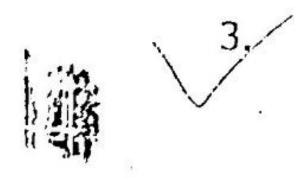
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FEDERAL UNIVERSITY OF TECHNOLOGY, OV/ERRI SCHOOL OF ENGINEERING AND ENGINEERING TECHNOLOSY DEPARTMENT OF MECHANICAL ENGINEERING

COURSE TITLE: COURSE CODE: INSTRUCTION:

TIME: 3HRS WORK STUDY AND PRODUCTIVITY **IPE 403** ANSWER FIVE (5) QUESTIONS IN ALL

- (a) Define ergonomics and state its purpose
- State five objectives of ergonomics (b)
- (C) Explain the following related sciences of ergonomics
 - Anthropology i.
 - ii. Physiology
 - iii. Anatomy
 - Phycology iv.
- 2. What is fatigue? (a)
 - Explain the two types of fatigue (b)
 - State any five causes of fatigue (c)
 - Explain the effects of fatigue on Labour Productivity and state how (d)can be reduced.



- Define job element (a)
- (b)
- State four reasons for breaking jobs into elements -3^{2} C^{2} Explain any four types of job elements. Give example in each case. (c)
- (a) Using any named industry in Nigeria, how would you differentiate 4. between partial and total productivity (b) Who is a productivity auditor? Explain.
- 5. Plow 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.

Write short notes on the following:

- Maintainability of a named equipment
- ii. Reliability
- Availability III.
- İ٧. Efficiency
- Effectiveness V.
- Productivity audit vi.

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