



D. A.

THE POLYTECHNIC, IBADAN
DEPARTMENT OF COMPUTER STUDIES
FIRST SEMESTER EXAMINATION 2023/2024 SESSION

COURSE CODE: COM 415

COURSE TITLE: RESEARCH METHODOLOGY

CLASS: HND II COMPUTER SCIENCE

TIME: 2 HOURS

INSTRUCTION: ANSWER ANY FOUR(4) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

QUESTION ONE

- a. Define a research methodology and discuss on the categories of research methodology known to you. 9marks
b. State the criteria of a good problem statements. 6marks

QUESTION TWO

- a. How do you define a research problem? Give an example to illustrate your answer 10marks
b. Discuss on the purpose of research methodology. 5marks

QUESTION THREE

- a. Highlight research process and its stages. 5marks
b. Locate a research problem in your area of interest, clearly and cogently.
i. Write the appropriate research title based on the problem
ii. State your aim and objectives
iii. State the methodology to achieve (3bi) 10marks

QUESTION FOUR

- a. What is a research topic? 5marks
b. Highlight various tools use for data collection, Discuss four of these tools. 10marks

QUESTION FIVE

- a. Why is literature review significant in the process of conducting research? 5marks
b. What is Research design? Discuss on the purpose of research design 10marks

QUESTION SIX

- a. Define scientific method of investigation and distinguish it from non-scientific method of investigation 7marks
b. Distinguish between primary sources and secondary sources of literature review. Give two(2) example each 8marks

difficulty to be eliminated,
a question that exist in scholarly literature; a quote that point the need
of meaningful & deliberate investigate



Comrade

D. A.

THE POLYTECHNIC, IBADAN
DEPARTMENT OF COMPUTER STUDIES
FIRST SEMESTER EXAMINATION 2023/2024 SESSION

COURSE CODE: COM 413
COURSE TITLE: DATA COMMUNICATIONS & NETWORKS
CLASS: HND II COMPUTER SCIENCE (FT & DPP)
TIME: 2 HOURS
INSTRUCTION: ANSWER ANY FIVE(5) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

QUESTION ONE ✓

- a. *Data communication and networking have found their way not only through business and personal communication; they have found many applications in political and social issues.* In the light of above assertion, define the term "network". 2marks
- b. A network must be able to meet a certain number of criteria. Explain any two of these criteria. 3marks
- c. Identify four(4) forms in which information can be represented in data communication 2marks
- d. In the data communications context, what is *broadcasting*? 2marks
- e. Give three(3) reasons for computer networking 3marks

QUESTION TWO ✓

- a. Hubs and Switches are network devices. Highlight five(5) differences between them. 5marks
- b. Describe the operations of any two(2) of the different switching methods you know 1 1/2marks each
- c. Highlight four(4) differences between packet switching and circuit switching 4marks

QUESTION THREE ✓

- a. Explain the importance of the OSI model 2marks
- b. Hence, in one sentence, state the key functions of each of the layers of the OSI model in the correct order. 7marks
- c. Define the following terms:
i. Bandwidth *amount of data transferred per second*
ii. Data packet *unit of data*
iii. Attenuation *loss of signal strength* 3marks

QUESTION FOUR ✓

- a. Explain the term '*data communication*' briefly 2marks
- b. *The effectiveness of a data communications system depends on four fundamental characteristics.* Enumerate these characteristics. 2marks
- c. Describe five (5) components of a data communications system. 5marks
- d. In three(3) sentences, highlight three(3) differences between LAN and WAN 3marks

QUESTION FIVE

- a. What are network bridges? 2marks
i. Hence, give a brief description of how a network bridge works 3marks
ii. Describe any two(2) types of network bridges 2marks each
- b. Give three(3) similarities between packet and circuit switching 5marks

QUESTION SIX

-
- a. What are data communication equipment? Give two(2) examples 3marks
 - b. Differentiate between:
 - i. Physical topology and Logical topology
 - ii. Point-to-point and multipoint connection2marks each
 - c. Define the following networking concepts:
 - i. Latency
 - ii. Multiplexing1½marks each
 - d. Briefly explain any one(1) of the three (3) modes of communication that you know. 2marks

↓
Video conferencing

QUESTION SEVEN

-
- a. What is **subnetting?** 1mark
 - ii. Why was subnetting introduced? 2marks
 - b. *In order to provide the flexibility required to support different size networks, the designers decided that the IP address space should be divided into three different address classes.*
 - i. What are the classes? State the boundaries of IP addresses for each of the classes. 3marks
 - c. Given that an organization has been assigned the network number 193.1.1.0/24 and it needs to define six subnets. The largest subnet is required to support 25 hosts. 3marks
 - i. Define the Subnet Mask / Extended-Prefix Length 3marks
 - ii. Define the subnet #2 IP address. 3marks

THE POLYTECHNIC, IBADAN.
DEPARTMENT OF MATHEMATICS AND STATISTICS.
FIRST SEMESTER EXAMINATION 2023/2024

COURSE CODE: STA 411

COURSE TITLE: OPERATIONS RESEARCH II

COURSE UNIT: 2

CLASS: HNDII COMPUTER STUDIES (FT FT)

TIME ALLOWED: $2\frac{1}{2}$ HOURS

INSTRUCTION: ATTEMPT ANY FOUR (4) QUESTIONS.

1(a) Derive an expression for the expected number of units in the system and in the queue respectively.

1(b). John Interior Design provides home and office decorating assistance to its customers. In normal operation, an average of 2.5 customers arrive each hour. One design consultant is available to answer customer questions and make product recommendations. The consultant averages 12 minutes with each customer. Assuming Poisson arrivals and exponential service times.

(i) Calculate operating characteristics, i.e. N_q , N_s , T_q , T_s and Traffic intensity or Utilization factor.

(ii) Service goals dictate that an arriving customer should not wait for service more than an average of 5 minutes. Is this goal being met? If not, what action do you recommend?

(iii) If the consultant can reduce the average time spent per customer to 8 minutes, what is the mean service rate? Will the service goal be met?

2(a) (i). What is simulation? What are its importance? *Monte Carlo method
Simulation method* *Computer system* *soft serving*

(ii) State two advantages and two disadvantages of simulation method.

(iii) State three (3) applications of simulation method. *Urban planning
environmental science
military and defense
training etc*

(b) The arrival of customers and service times of customers are having the following

distributions. The Server resumed at 9.00 a.m.

Inter-arrival Time (min.)	Probability	Service time minutes	Probability
5	0.11	7	0.10
6	0.27	8	0.35
7	0.56	9	0.45
8	0.06	10	0.10
RN (Arrivals): 36 60 82 14 14 62 62 10 55 14			
RN (Services): 34 35 31 62 48 73 88 70 19 40			

(i) Simulate this queuing system for 10 periods.

(ii) Calculate mean waiting time.

3(a) Distinguish between each of the following terms:

(i) Ordering and holding costs; (ii) FIFO and LIFO; (iii) Single-channel model and multiple-channel model

*ordering cost
holding cost
interest on capital tied up
associated with
level of inventory affected by
the more stock the greater*

*queuing system consisting of
two or more channels that
are assumed to be identical
in term of service facility
or capability*

3(b) Compute the optimal inventory quantity, and the cycle time; using the following information:

Annual demand	25,000
Unit price	#24
Fixed cost	#40
Storage rate	5% per year.
Interest rate	12% per year.
Obsolescence rate	7% per year.
Number of working days	270

It is to be considered
whether we are
approaching to different
approaches
~~2/10/5~~

4(a)(i) Define a queue and customers behaviors".

(ii) What are the underlying assumptions in single- channel queuing system?

4(b) A fast-food franchise is considering operating a drive-up window food service operation. Assume that customer arrivals follow Poisson distribution with a mean arrival rate of 24 cars per hour, and that service times follow an exponential distribution. Assume that customers place orders at an intercom station at the back of the parking area and then drive to the service window to pay for and receive their orders. The following two service alternatives are being considered:

(A) A single- channel operation in which one employee fills the order and takes the money from the customer. The average service times for this alternative is 2 minutes.

(B) A Two- channel operation with two service windows and two employees. The employee stationed at each window fills the order and takes the money for customers arriving at the window. The average service time for this alternative is 1.5 minutes for each channel.

(i) Compute all necessary queuing parameters in each operation.

5(a) Explain four (4) reasons for keeping stocks or inventories in business settings.

5(b) In the child welfare section of a hospital, two specialists attend to the outdoor patients daily from 2 P.M to 5 P.M. There is a general complaint from the public that they have to wait too long. The duty doctors also complain that due to excess of patients they have to sit beyond 5 P.M. on many occasions. From the data collected over the past months, the following distributions of patients' arrivals and the check- up times are determined:

Number of patients/day	Frequency (%)	Check-up time/ patient (min.)	Frequency (%)
20	40	8	20
25	30	12	40
30	20	15	35
40	10	20	5

What should be the number of doctors on duty so that their average busy time does not exceed 3 hours/ day?

6(a) Derive an expression for an optimal order quantity (EOQ).

6(b) Write short but explanatory notes each of the following terms:

(i) Safety stock; (ii) Inventory; (iii) Shortage costs, (iv) Service discipline; (v) Arrival rate.

6(c) An aircraft company uses rivets at an approximate consumption rate of 2500kg per year. The rivet cost #300 per kg and the company personnel estimate that it costs #1300 to place an order and the inventory carrying cost is 10% per year.

(i) What quantity should be ordered? (ii) How many orders should be placed per year?

(iii) What quantity should be requested for, if stock-out cost is #1.50?



THE POLYTECHNIC, IBADAN
SOCIAL SCIENCE DEPARTMENT

FIRST SEMESTER EXAMINATION 2023/2024 SESSION

COURSE TITLE: INDUSTRIAL MANAGEMENT
COURSE CODE: GNS 413
CLASS: HND II Biology, Chemistry, Computer Science, Phy and HND 1 PT ELECT ENGR.
TIME ALLOWED: 2HRS 30min.
INSTRUCTION: ANSWER ANY FIVE (5) QUESTIONS

- 1✓ "Effective management requires the coordination of several vital components processing called functions". Discuss the relevance of these functions in a modern organization.
- 2✓ Your friend, Mr. Adeagbo, is an entrepreneur that has been in production of his goods since year 2000. Recently he requires funds to sustain his business.
 - (a) Outline the means he can use to raise fund.
 - (b) Explain two benefits and problems attached to each of these means.
- 3✓ Mayland Nigeria Limited requires the services of a Human Resource Manager. Assist this company with explanation of the functions of a Human Resource Manager.
- 4✓ As a marketing manager, assist a friend who intends to produce fruit drink, with the various marketing steps to take before production and the marketing tools to use in showcasing this product to the market.
5. A businessman that is rational requires to produce at a profit maximizing level. To achieve this level, the businessman requires segmentation. Explain what market segmentation is and discuss the types of market segmentation you know.
6. "After the eradication of trade by barter, the introduction of many and the various financial institutions followed". Explain the function of a commercial bank in an economy.
- 7✓ Write short notes on the following terms:
 - (a) Communication
 - (b) Money market
 - (c) Capital Market
 - (d) Fintech



D/H/MS

THE POLYTECHNIC, IBADAN
DEPARTMENT OF COMPUTER STUDIES
FIRST SEMESTER EXAMINATION 2023/2024 SESSION

COURSE CODE: COM 411

COURSE TITLE: WEB TECHNOLOGY

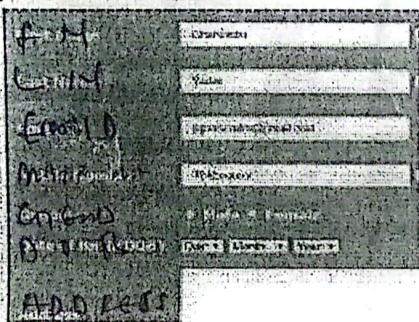
CLASS: HND II COMPUTER SCIENCE (FT)

TIME: 2 HOURS 30 MINUTES

INSTRUCTION: ANSWER QUESTION ONE(1) AND ANY FOUR(4) QUESTIONS

QUESTION ONE ✓

- a. As a web developer, you are invited by CODEHABITS Nigeria Limited a popular IT company and you are asked to help them develop a form below using only HTML and CSS. Therefore, write a code that can generate this table.



- b. Write JavaScript code that can be used to solve quadratic equation by using almighty formula.

Hint : $x = -b + b \sqrt{b^2 - 4ac} / 2a$

sqr

- c. i. Mention and explain three ways of including Cascading Style Sheet in the webpage and write exemplary code.

ii. Explain the following

1. Thin clients.
2. Thick clients.
3. Hybrid clients

- d. i. Explain client-server model and compare it with cross multiple devices, and explain three(3) benefits.

- ii. Mention and explain four(4) client-server architecture types that are commonly used by IT professional.

20marks

QUESTION TWO ✓

- a. What is a Server?

- b. What is the output of this program?

```
<script type = "text/javascript">
```

```
{  
Var x = 20;  
Var y = 10;  
Var l = 24;  
Var P = 4(x * y + l/2);  
Document.write("What is the value of p in this program. =", P);  
}  
</script>
```

- c. In Cascading style-sheet there are three(3) selectors, name them.

10marks

QUESTION THREE

- a. Mention two(2) types of scripting language that you know.
 b. Debug the following code in cascading style sheet

```
form{
    width: 100%;
    padding: 15px;
    margin-bottom: 10px;
    border-radius: 5px;
    border: 1px solid #ccc;
}
```

10marks

QUESTION FOUR ✓

- a. Which of the heading tags is the biggest among the heading tag.
 b. Mention two(2) differences between a web page and a website
 c. What is the function of these tags in web page design "<input type>...</input>"

10marks

QUESTION FIVE ✓

- a. Describe the function of the following tags.
 i. <title> ii. <Body> iii. <Head> iv. <style> v. <script>
 b. Write an html code that can generate the items below.
 1. Chelsea
 2. Super-eagle
 3. Liver-pool
 4. ManU
 5. Everton

10marks

QUESTION SIX .

- a. What is the output of this code?
 <?php
 \$age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");
 echo "Peter is " . \$age['Peter'] . " years old.";
 ?>
- b. Explain two(2) differences with two(2) examples of each between the web browser and operating system

10marks

QUESTION SEVEN ✓

- a. Write html code that will generate the form below.

Employee Table

Employee ID	Employee Name	Employee Department	Salary
101	Joe	Developer	\$500, 500
102	John	QA Test	\$300, 500
103	Beck	Analyst	\$250, 500

10marks

P.H.S

THE POLYTECHNIC, IBADAN
FACULTY OF SOCIAL MANAGEMENT AND HUMANITIES
DEPARTMENT OF LANGUAGES AND COMMUNICATION
FIRST SEMESTER EXAMINATION 2023/2024 SESSION

COURSE TITLE: COMMUNICATION IN ENGLISH IV
COURSE CODE: GNS 401
CLASS: HND II
DURATION: 2 HOURS

OPTION A

INSTRUCTION: Answer ONE questions from Section A; TWO from Section B and ONE from Section C.

SECTION A: THEORY AND PRACTICE OF COMMUNICATION
(Answer one question from this Section)

- 1a. With the aid of diagram, briefly establish the difference between Harold Lasswell's and David Berlo's models of communication as propounded in their theories.
- 1b. Communication is a cyclical process. Justify this assertion with reference to interacting variables.
- 1c. Written Communication is the most ideal in a formal setting. Discuss four strengths and three weaknesses of written communication.

SECTION B: ORGANISATIONAL COMMUNICATION
(Answer TWO questions from this Section)

- 2a. Effective Communication could be jeopardised with the existence of certain factors. Identify and explain seven of such factors.

2b. The chairman and the secretary are two important stakeholders in the conduct of a meeting. Discuss four roles of each of the duo in a successful meeting.

2c. Write short notes on any FIVE of the following with relevant illustrations/examples:

- (i) Conference (ii) Symposium (iii) Workshop (iv) Structured Interview (v) Minutes of meeting
(vi) Vertical Communication (vii) Rumour

2d. Identify and explain any six factors a prospective interviewer must consider as yardsticks of evaluation in an interview process.

SECTION C: LEADERSHIP AND CONFLICT MANAGEMENT

(Answer one question from this Section)

3a. Dynamism in Leadership styles is a prerequisite for good performance in an organisation. Discuss any THREE styles a leader could employ in administration of an organisation.

3b/ (i) Explain the term "conflict"
(ii) In your capacity as the General Manager in a named organisation, explain any FIVE ways through which you can detect conflict.

3c. With relevant examples, write short notes on any FIVE of the following:

- (i) Path-goal Theory (ii) Bureaucratic Leadership (iii) Situational Theory
(iv) Negative Conflict (v) Win-lose method (vi) Lose-lose method
(vii) Exit-Interview