



# THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

*Faculty of Applied & Health Sciences*

DEPARTMENT OF MEDICAL SCIENCES

**DIPLOMA IN PHARMACEUTICAL TECHNOLOGY (DPT 10M/10J)**

APM 2261: DRUG SUPPLY MANAGEMENT

**END OF SEMESTER EXAMINATION**

**SERIES: DECEMBER 2011**

**TIME: 3 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer booklet*

This paper contains **TWO** questions **A** and **B**. Answer **ALL** questions in section **A** (40 marks). Choose any **THREE** from section **B**. Each question in section **A** carries 4 marks and 20 marks in section **B**

This paper consist of **ELEVEN** printed pages

## SECTION A (Answer all questions)

1. Which of the following is not a concept of drug use?  
A. Labeling  
B. Dispensing  
C. Patient Compliance  
D. Store Inspection
2. The following are types of drug donation which are acceptable except  
A. Supply in emergency situation  
B. Supply as part of development aid between governments  
C. Supply of recently expired drugs  
D. Supply of returned drugs
3. Which of the following is not a tool for drug selection?  
A. Formulary Manuals  
B. Formulary list  
C. Essential drug list  
D. List of registered drugs
4. The average drug consumption rate is referred to as  
A. A quantification method  
B. A selection method  
C. A factor in reorder level  
D. A factor in identification
5. Stock that should always be on hand to prevent stock outs is  
A. Minimum stock  
B. Safety stock  
C. Maximum stock  
D. Working stock
6. Which of the following item has methods of disease diagnosis and treatment alternatives  
A. British national formulary  
B. Standard treatment guidelines  
C. Formulary list  
D. Essential drugs list
7. Which of the procurement methods is called 'local shopping'  
A. Competitive negotiation  
B. Restricted tender  
C. Open tender  
D. Direct procurement
8. The quantity of remaining stock that triggers need to replenish an item is called  
A. Safety stock  
B. Reorder position  
C. Stock position  
D. Economic order quantity

9. The period between order initiation and reception of goods and services is called
  - A. Lead time
  - B. Procurement period
  - C. Average monthly consumption
  - D. Purchasing time
  
10. The following are functions of a store keeper except
  - A. Keeping records
  - B. Issuing records
  - C. Stock taking
  - D. Awarding tenders
  
11. The term national drug use is used in the biomedical context that includes the following criteria except.
  - A. Correct drug usage
  - B. Appropriate indication
  - C. Use of proprietary names
  - D. Patience Adherence to Treatment
  
12. Which of the following statement is not true about national drug policy?
  - A. Provides a strong foundation for managing drug supply
  - B. It gives guidelines on trainings
  - C. Contains the goals set by the government for the pharmaceutical sector
  - D. Has a significant impact on the availability and use of pharmaceuticals.
  
13. At the centre of the drug management cycle are to be found the following, except
  - A. Procurement
  - B. Organization
  - C. Financing and Suitability
  - D. Information management
  
14. High level commitment to pharmaceutical sector improvements can be stimulated by the following except.
  - A. Discontent among health staff and public about drug shortages
  - B. Concern in the ministry of finance about rising drug expenditure
  - C. Publicity about poor drug quality
  - D. Patients apparent ignorance
  
15. Which of the following statements does not capture the purpose of a pharmaceutical system assessment?
  - A. To diagnose problems
  - B. Plan major intervention projects
  - C. Monitor programs and compare the performance of a system with another
  - D. Supply of commodities.
  
16. The guide for action containing the goals set by the government for the pharmaceutical sector and the min strategies and approaches for attaining them may be described as.
  - A. Treatment guidelines
  - B. Treatment protocas

- C. National drug policy
  - D. Formulary system
17. Which of the following best describes the restricted tender under procurement system.
- A. Participation of suppliers is limited to those who have pre qualified
  - B. Bidding is open to representative samples of suppliers countrywide
  - C. Bidding is open to all interested suppliers
  - D. Commodities are procured directly from suppliers
18. Which of the following forms the last step in drug distribution cycle?
- A. Dispensary to the patient
  - B. Requisition of suppliers
  - C. Reporting consumption
  - D. Receipt and inspection
19. In perpetual purchasing model;
- A. The buying organization places an order at least once a year
  - B. Orders are placed every three months
  - C. Orders are places whenever stocks fell below a specified level
  - D. The organization places orders based on the available resources
20. The following are the major criteria for drug selection, except.
- A. Relevance to pattern of prevailing disease
  - B. Ease of local production and import
  - C. Proven efficiency and safety
  - D. Adequate scientific data
21. The typical context in which drug supply is identified is
- A. Independent demand system
  - B. Dependant demand system
  - C. Push system
  - D. Pull system
22. Which of the following is the heart of the drug supply system
- A. Selection
  - B. Planning
  - C. Manufacturers
  - D. Inventory control
23. Which of the following is not a core indicator as recommended by WHO?
- A. Average number of drugs per encounter
  - B. Percentage of drugs prescribed by generic name
  - C. Number of patients visiting the facilities on monthly basis
  - D. Percentage of encounters with an antibiotic prescribed
24. The type of efficiency in health management programs which is achieved if resources are used to produce a given output at the lowest possible cost and produce greater output for the same cost may be termed
- A. Technical efficiency
  - B. Operational efficiency

- C. Therapeutic efficiency
  - D. Allocative efficiency
25. In practice, health systems demand is controlled by intent; by neglect or through a combination of many possible measures. Which of the following is not one of them?
- A. Increasing cost of patients
  - B. Impose rationing or other administrative costs
  - C. Offering free medical services
  - D. Provide attractive alternatives
26. The following are all possible funding options for drugs in the public sector except
- A. The waiver system
  - B. Government revenues
  - C. Direct payments by patients
  - D. Health insurance
27. Sustainable improvement in the pharmaceutical sector depends on the following, except
- A. High level national commitment to improvement
  - B. Technical sound plans based on the accurate situation analysis
  - C. Technical and financial resources to implement proposed changes
  - D. Simple sourcing of pharmaceuticals.
28. The function of supply management that aims to provide sufficient stocks of commodities at the lowest cost possible may be described as:
- A. Inventory control
  - B. Logistics management
  - C. Requisition control
  - D. Inventory management
29. The following are alternative systems for supplying drugs to public health facilities, except:
- A. Central; stores system
  - B. Autonomous supply system
  - C. Indirect delivery system
  - D. Prime vendors system
30. Which of the following terms has the same meaning as 'procurement period'
- A. Lead time
  - B. Reorder frequency
  - C. Pipeline
  - D. Pipeline health
31. Which of the following terms best describes the total stock kept on hand at any storage point to protect against uncertainty, permit bulk purchasing and minimize waiting time?
- A. Buffer stock
  - B. Inventory
  - C. Safety stock
  - D. Working stock

32. Which of the following methods of organizing drugs is unsuitable for small drug store outlets.
- A. Clinical indication
  - B. Dosage form
  - C. Level of use
  - D. Therapeutic and pharmacologic
33. Contract terms usually state that all pharmaceutical products are to be manufactured in conformity with recognized standards. Which of the following is not one of such standards.
- A. The British pharmacopoeia
  - B. United States pharmacopoeia
  - C. British national formulary
  - D. International pharmacopoeia
34. Which of the following statements best describes the term 'inventory control?'
- A. A supply system purpose and the type of distribution system
  - B. The function of supply management that aims to provide sufficient stock drugs at the least cost
  - C. The management of routine ordering process
  - D. The total stock kept on hand at any storage point to protect against uncertainties
35. The rationale for the selection and use of a limited list of essential drugs is that it leads to all the following except
- A. Improved supply of drugs
  - B. More rational prescribed
  - C. Lower cost of drugs
  - D. Reduced rational prescribing
36. A form of financial guarantee that the supplier deposits when accepting the contract and the amount which is forfeited if the supplier defaults on the contract is termed:
- A. Bid bond
  - B. Guarantee bond
  - C. Performance bond
  - D. Collation bond
37. The total time it takes a product to get from the top of the pipeline to the customer at the service delivery point is termed as
- A. Pipeline length
  - B. Procurement period
  - C. Lead time
  - D. Indent time
38. A structure or room where commodities are kept safely and are available to users as and when required is called
- A. Warehouse
  - B. Depot
  - C. Store
  - D. Inventory collection point
39. Which of the following activities marks the beginning of the process of contracting for drugs and services?

- A. Preparation of tender
  - B. Invitation of tenders
  - C. Preparation of commodity requirement list
  - D. Adjudication of tenders
40. Which of the statements below is not true about 'dependent drug system'
- A. Manage inventory requirements for finished products
  - B. Manage inventory for raw materials
  - C. Also known as materials requirement planning
  - D. Depend on the production schedule
41. The sum of stock on hand and stock on order, subtract any stock back order to clients will give.
- A. Maximum stock level
  - B. Stock position
  - C. Service level
  - D. Safety stock
42. Managerial strategies to improve rational prescribing includes all the following except
- A. Price control
  - B. Prescribing and disposing in a structured manner
  - C. Selection procurement and distribution
  - D. Providing limited drug list
43. Which of the following is not an educational strategy to improve drug use?
- A. Prescribing restrictions
  - B. Quality training for prescribers
  - C. Availability of printed materials to enrich and update the prescribers.
  - D. Approaches based on face to face contact with prescribers, patients and opinion leaders
44. Identify among the following factors, the prescriber related factors that influence irrational use of drugs
- A. Inadequate training
  - B. Availability of inappropriate drugs
  - C. Out dated practices due to lack of continuous education
  - D. Lack of objective drug information
45. With reference to the dispensing cycle, identify the odd one out
- A. Interpret and verify
  - B. Record and endorse
  - C. Select and order
  - D. Counsel and supply
46. Which of the following does not affect patients adherence to treatment
- A. Cultural beliefs
  - B. Attitude towards the prescriber or dispenser
  - C. Mature of communication
  - D. Lack of objective drug information

47. An interbank document stating that a certain sum of money is available for the seller to claim from its bank as soon as it ships a consignment and presents the required document, is referred to as:
- A. Notice of funds transfer
  - B. Deferred payment notice
  - C. Letter of debt
  - D. Letter of credit
48. A stock movement review process in which items are categorized by the volume of consumption during a specific period of time is described as.
- A. VEN analysis
  - B. Vertical consumption analysis
  - C. Stock pareto analysis
  - D. ABC analysis
49. The time between the invitation to tender and the closing date is called?
- A. Lead time
  - B. Open period
  - C. Tender period
  - D. Bid interval
50. A schedule of requirements may also be described as?
- A. Performance bond
  - B. Bind bond
  - C. Tender list
  - D. Adjudication bill
51. Which of the following procurement method is fundamentally different from the others
- A. Restricted tendering
  - B. Open tender
  - C. Closed bid
  - D. Selection tender
52. Which of the following is referred to as treatment protocol?
- A. Formulary manual
  - B. Treatment guidelines
  - C. Essential drug list
  - D. Formulary system
53. Which of the following is a characteristic of direct procurement?
- A. It is a selective process
  - B. Number of suppliers limited to ten or less
  - C. Used for patented drugs
  - D. Provides possibility of getting lower prices
54. Which of the following best describes the phase adjudicating the tender?
- A. Collation of bids
  - B. Awarding the contract
  - C. Making decisions as to who is to be awarded the tender



- D. Technical specifications
55. A fully developed information system for inventory control has the following components, except?
- A. Performance monitoring
  - B. Stock control system
  - C. Ideal inventory control model
  - D. Inventory management system
56. The following are all stock holding costs, which one is not?
- A. Expiry
  - B. Obsolescence
  - C. Loss of goodwill
  - D. Spoilage
57. All the following are the most common inventory control methods in drug supply except.
- A. Annual purchasing
  - B. Scheduled purchasing
  - C. Periodic purchasing
  - D. Perpetual purchasing
58. The term used to describe the process of collecting information together from different sources in order to examine and compare is:
- A. Collating
  - B. Adjudicating
  - C. Bid editing
  - D. Expediting
59. Which of the following reasons is not true regarding drug supply in primary health care programmes
- A. Drugs saves lives and improve health
  - B. Drugs promote trust
  - C. Cost of drugs is high
  - D. Drugs are like other consumer products
60. The last of the major activities in the dispensing process is 'issue medicines to patients with clear instructions and advice'. The advice to the patient may emphasize all the following except.
- A. When to take the medicines
  - B. How to take the medicine
  - C. Where and how to obtain the medicine on completing the dispensed course
  - D. How to store and care for the dispensed medicines.

**SECTION B (answer all the questions)**

61. List **FOUR** main components of the national drug policy
62. State any **FOUR** circumstances under which single sourcing may be justified.

63. State any two reasons which may favour the use of negotiation over competitive bidding for critical procurement
64. Explain the following terms as applied in the strategies for encouraging appropriate use of drugs.
- Public Centered Approach
  - Patient Centered Approach
65. When drugs need exceed available funds, various strategies may be employed. Explain the following strategies of reducing drug quantities.
- Preferential weighing
  - Equal misery
66. Explain the **FOUR** benefits of holding stock
67. Theft of drugs is common in developing countries health facilities. Give **FOUR** factors that contribute to this.
68. List any **FOUR** purposes served by Purchasing Audits
69. State the **FOUR** main components of the management support function in the drug management cycle
70. Explain the meaning of each of the following terms relating to drug distribution.
- Order picking
  - Cold storage
71. Explain the following types of inventory control methods
- Scheduled purchasing
  - Perpetual purchasing
72. Outline any **FOUR** principles of good pharmaceutical procurement practice
73. Explain the meaning of the following abbreviations as applied in stock rotation  
(FEFO)  
(FIFO)
74. Some pharmaceutical products come with no special instruction with regard to storage. In this case, normal storage conditions apply. Explain the term 'Normal Storage Conditions'
75. State **FOUR** conditions that favour push system with reference to drug distribution

**SECTION C (Answer any THREE questions)**

76. (a) Discuss **FIVE** major reasons why the use of a limited list of essential drugs is preferred. (10 marks)
- (b) Explain the criteria outlined by WHO for the selection of essential drugs (10 marks)

77. Outline the following alternative system of supplying drugs to public health facilities.
- a) Central Stores System
  - b) Direct Delivery System
  - c) Autonomous Supply System
  - d) Prime Vendor System
78. (a) Explain the meaning of the following concepts related to inventory management
- (i) Inventory
  - (ii) Inventory control
- (b) Differentiate between 'Dependent Demand System' and 'Independent Demand System'
- (c) Name and describe the **FOUR** commonly used manual stock records in the Public Supply System.
79. (a) List the ten standard steps in the tender cycle (12 marks)
- (b) Outline specifications require for each drug on the drug list in the qualification process (8 marks)
80. Describe in detail the drug distribution cycle (20 marks)