DESIGNING OUTPUTS

Contents

LEARNING GOALS

- Review characteristics of devices used to output information from computers
- Objectives of output design
- Design of reports
- design of screens
- Role of graphics in output design

MOTIVATION

- Presenting results of processing in an attractive and easily understood form is important
- Management requires these reports to initiate actions and thus the significance of outputs must be easily perceived
- Must be aware of new output devices being introduced to use them appropriately
- Must also be aware of changes in output delivery with the emergence of systems such as intranets/internet.
- Must also cater to newer applications such as e-commerce which uses the world wide web.

OUTPUT DEVICES

- HARD COPY DEVICES - PRINTERS
- SOFT DEVICES - VIDEO DISPLAY DEVICES
- MULTIMEDIA
  - TEXT
  - AUDIO - SPEECH SYNTHESISER
  - GRAPHICS
  - VIDEO

HARD COPY DEVICES

- Printers used when - there is large volume of data
  - several copies normally needed

- Types of printers
  - Impact
    - Line Printers
    - Dot matrix character printers
  - Non-Impact
    - Laser printer
    - Inkjet printer

PRINTER CHARACTERSTICS

LINE PRINTERS

-LARGE VOLUME OUTPUT

-FAST - ENTIRE LINE PRINTED

-MULTIPLE COPIES

-HIGH CAPITAL COST BUT LOW RUNNING COST

DOT MATRIX PRINTERS

- SLOW
- INEXPENSIVE (PER COPY COST)
- MULTIPLE COPIES WITH CARBON PAPER
- POOR GRAPHICS

PRINTER CHARACTERSTICS

INKJET PRINTERS

-CHARACTERS + GRAPHICS

-MULTICOLOUR

-CAPITAL COST LOW COMPARED TO LASER PRINTER

-RECURRING COST HIGH

LASER PRINTERS

-CHARACTERS + GRAPHICS

-MULTICOLOUR EXPENSIVE

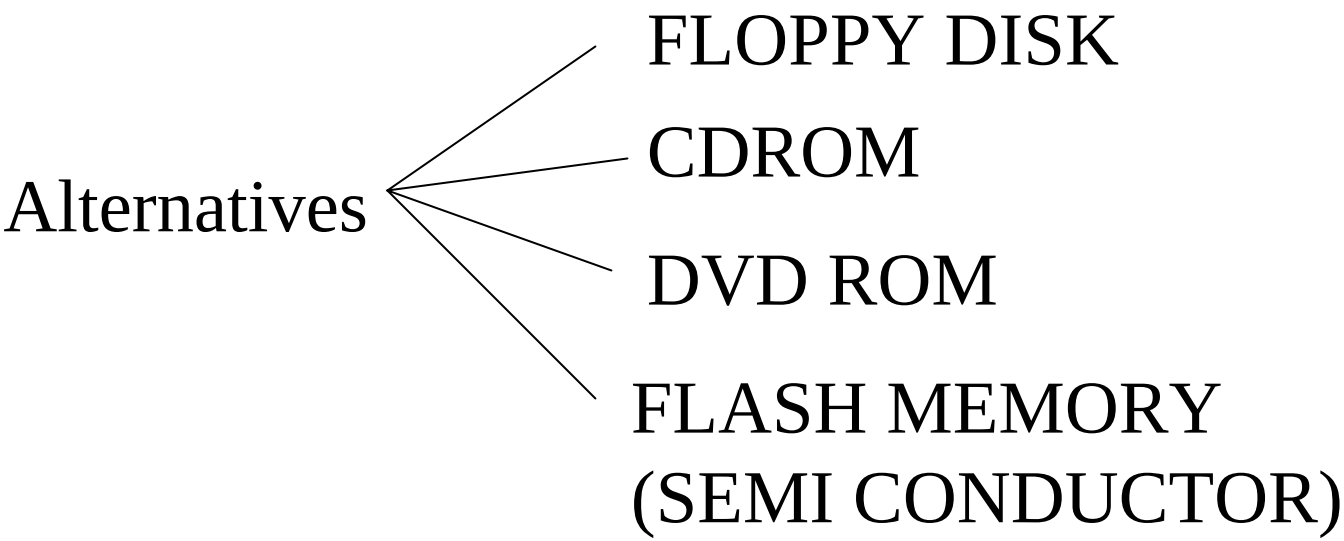
-EXCELLENT QUALITY

-CAPITAL COST HIGH

- RECURRING COST LOWER THAN INKJET

SOFT COPY MEDIA

• Used to distribute manuals, massive reports, user documents, software



SOFT COPY MEDIA (CONTD)

- FLOPPY DISK

  - Inexpensive
  - Easy to mail/transport
  - Low capacity –1.4MB
  - Read/write
  - Contact recording – number of read/writes limited

SOFT COPY MEDIA (CONTD)

- **CDROM**
  - Inexpensive Medium
  - Read only cheaper/safer
  - High capacity – 600MB
  - Easy to transport/mail
  - Primarily used for Text/Graphics

- **DVDROM**
  - Read only cheaper/safer
  - Very high capacity – upto 8GB
  - Easy to transport
  - Useful for storing high quality video such as full length movies

SOFT COPY MEDIA (CONTD)

- **FLASH MEMORY**
  - Read/Write
  - Small size and weight
  - No moving parts thus very reliable
  - Needs USB port on PC
  - Size 128KB to 2GB
  - Low Power needs
  - Expensive

SPEECH OUTPUT DEVICES

- Audio such as beeps used for alerting users
- Device used is a speaker
  - Very small and inexpensive for beeps
  - Inexpensive for speech quality
- Useful when eyes are busy,for example, while driving,pilots etc.
- Pre-recorded speech is output in such cases
- Text-to-speech also useful for giving instructions where manuals cannot be read.

OBJECTIVES OF OUTPUT DESIGN

While designing output format and picking output devices the following should be taken into account

- The user group
- Proposed use
- Volume of output
- Periodicity of output
- Timely delivery when required

NATURE OF OUTPUT REPORTS

- **TOP MANAGEMENT**

  - Summary highlighting important results

  Graphical Output – Pie charts

  - Bar charts

  -Maps

  Needed for strategic management

NATURE OF OUTPUT REPORTS

- **MIDDLE MANAGEMENT**

  - Exception reports
  - Reduced output volume
  - Needed for tactical management

NATURE OF OUTPUT REPORTS

- **OPERATIONAL MANAGEMENT**

  - DETAILS NEEDED

  For example

  -Payroll

  -Grade sheets

  -Cheques

PERIODICITY OF OUTPUT REPORTS (CONTD)

- **TOP MANAGEMENT**

  -Whenever there are any significant changes

  -Give option to ask for specific details

  -Periodic quarterly

- **MIDDLE MANAGEMENT**

  -Send daily exceptions

  -Provide summary on terminal with option to look at greater details on request

PERIODICITY OF OUTPUT REPORTS (CONTD)

- **OPERATIONAL MANAGEMENT**

  -Regular periods

  -Periods depend on application

  -Example : Payroll monthly

DESIGNING OF OPERATIONAL OUTPUT REPORTS

Structure of a report - Headings

- Report heading
- Page heading - appears in each page
- Detailed heading for each column
- Set of records forming a logical group called control group and is given a control heading

DESIGNING OF OPERATIONAL OUTPUT REPORTS (Contd)

Structure of a report - Footings

•Labels used to describe information contained in a control group are called control footings

•Labels printed at the end of each page of a report is called page footing

• Label used to give the control information for the whole report is called final control footing

•Label printed at the end of the entire report is called report footing

EXAMPLE OF TERMINOLOGY

Report heading → INDIAN INSTITUTE OF SCIENCE - ACADEMIC ROLL LIST

Page heading → ROLL LIST OF STUDENTS SEM 1/2000-2001

Control heading → LIST OF STUDENTS IN AEROSPACE ENGG DEPT

Detail lines →

Roll No	Name
97101115	A.B.BHATTACHARYA
97101125	A.K.CHANDRA
97101135	R.K.GUPTA
⋮	
97201198	P.R.RAO

Control footing → TOTAL NO OF STUDENTS

Roll No	Name
97102105	A.C.ARVIND
97102121	L.S.BHATIA
⋮	
97102131	P.R.ZAVERI

Control footing → TOTAL NO OF STUDENTS IN CHEMICAL ENGG.DEPT = 63

Final control footing → TOTAL NO OF STUDENTS IN SEM 1/200-2001 = 852

Report footing → END OF IISc BANGALORE ROLL LIST FOR SEM 1/2000-2001

PRINT CHART

- Print chart used by analyst to develop paper report format
- Languages available to describe format of report and a report generation program creates report

GENERAL PRINCIPLES OF DESIGNING REPORTS

- Should be able to read left to right, top to bottom
- Easy to find important items such as keys
- All pages numbered and has heading. Report date essential
- All columns labelled
- Keep essential details only
- Proper use of control footings
- Page and report footing useful
- Space for end of report signature if needed

DESIGN OF SCREENS

- Screen display convenient for interactive use
- Screen size normally smaller than printer - usually 80 cols per line and 24 lines per screen
- Principle of layout similar
  - Primarily ease of reading
- Provision made at bottom of screen to continue, get details or exit
- Nowadays screens are designed with buttons which can be clicked using a mouse to get details, continue or exit from screen

EXAMPLES OF SCREENS

SCREEN FOR GENERAL STUDENT INFORMATION

INDIAN INSTITUTE OF SCIENCE
STUDENT INFORMATION SYSTEM

ROLL NO	NAME	DEPT	YEAR
9501325	A.B.BHATTACHARYA	AEROSPACE	ME 1
9602415	A.P.DAS	CSA	Ph.D
9602325	P.GANAPATHY	EE	M.Sc
9701425	G.HARI	MET	ME II
9702112	H.JAI SINGH	CIVIL	Ph.D
_____	_____	_____	_____
_____	_____	_____	_____

DETAILS CONTINUE EXIT

CLICK BUTTON AS REQUIRED

EXAMPLES OF SCREENS

SCREEN FOR DETAILED STUDENT INFORMATION

INDIAN INSTITUTE OF SCIENCE
STUDENT INFORMATION SYSTEM

05-05-2000

ROLL NO	9701425
NAME	G.HARI
YEAR	ME II
GUARDIAN	P.GANESHAN
ADDRESS	41 OLIVER STREET MYLAPORE MADRAS 600 004

DETAILS RETURN

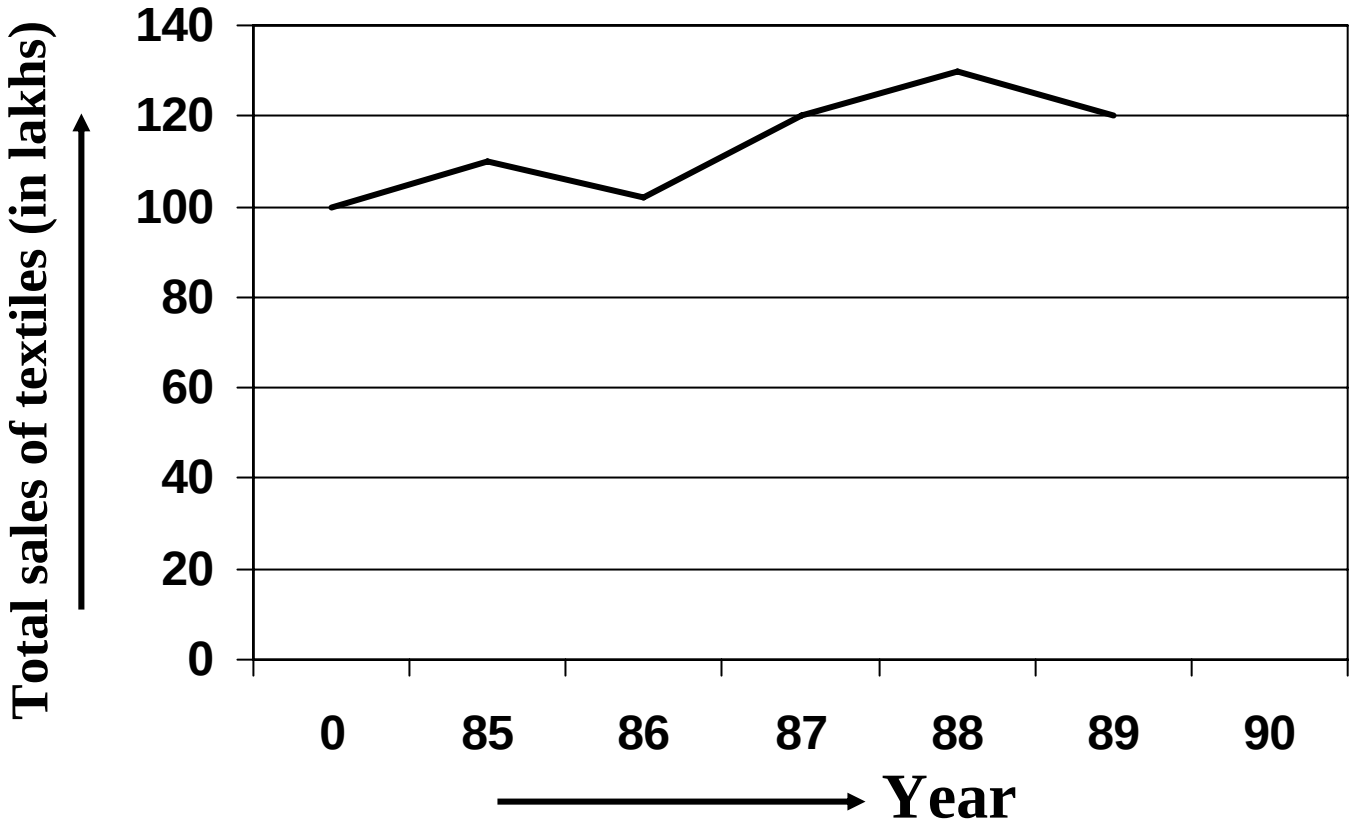
BUISNESS GRAPHICS

SHOWS INFORMATION IN PICTORIAL FORM WHICH IS EASY TO UNDERSTAND

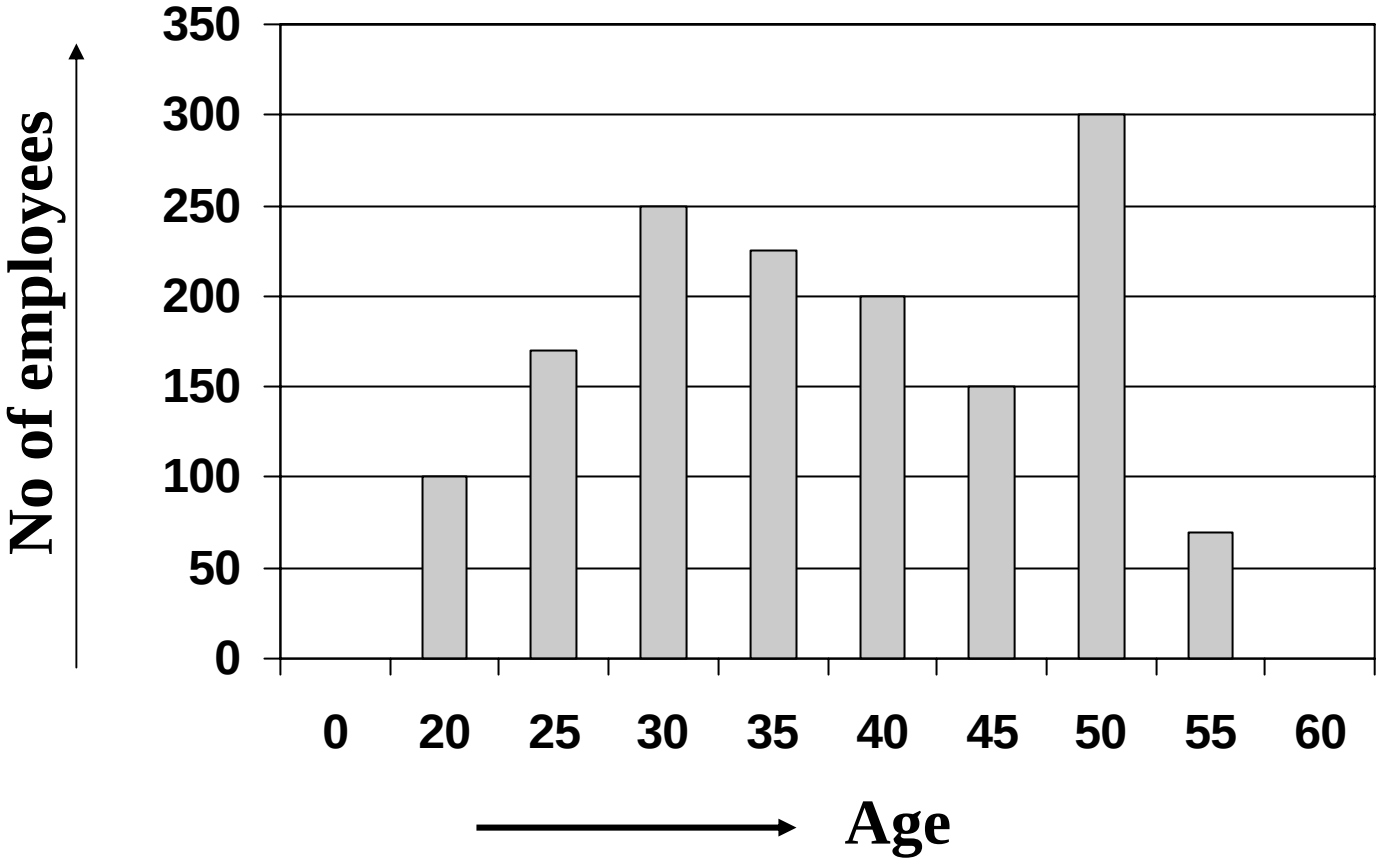
USUAL PICTURES ARE

- BAR CHARTS - RELATIVE DISTRIBUTION EASY TO SEE
- PIE CHARTS - %USE OF RESOURCES EASY TO SEE
- X-Y GRAPHS - TRENDS EASY TO SEE
- MAPS - GEOGRAPHICAL DISTRIBUTION EASY TO SEE

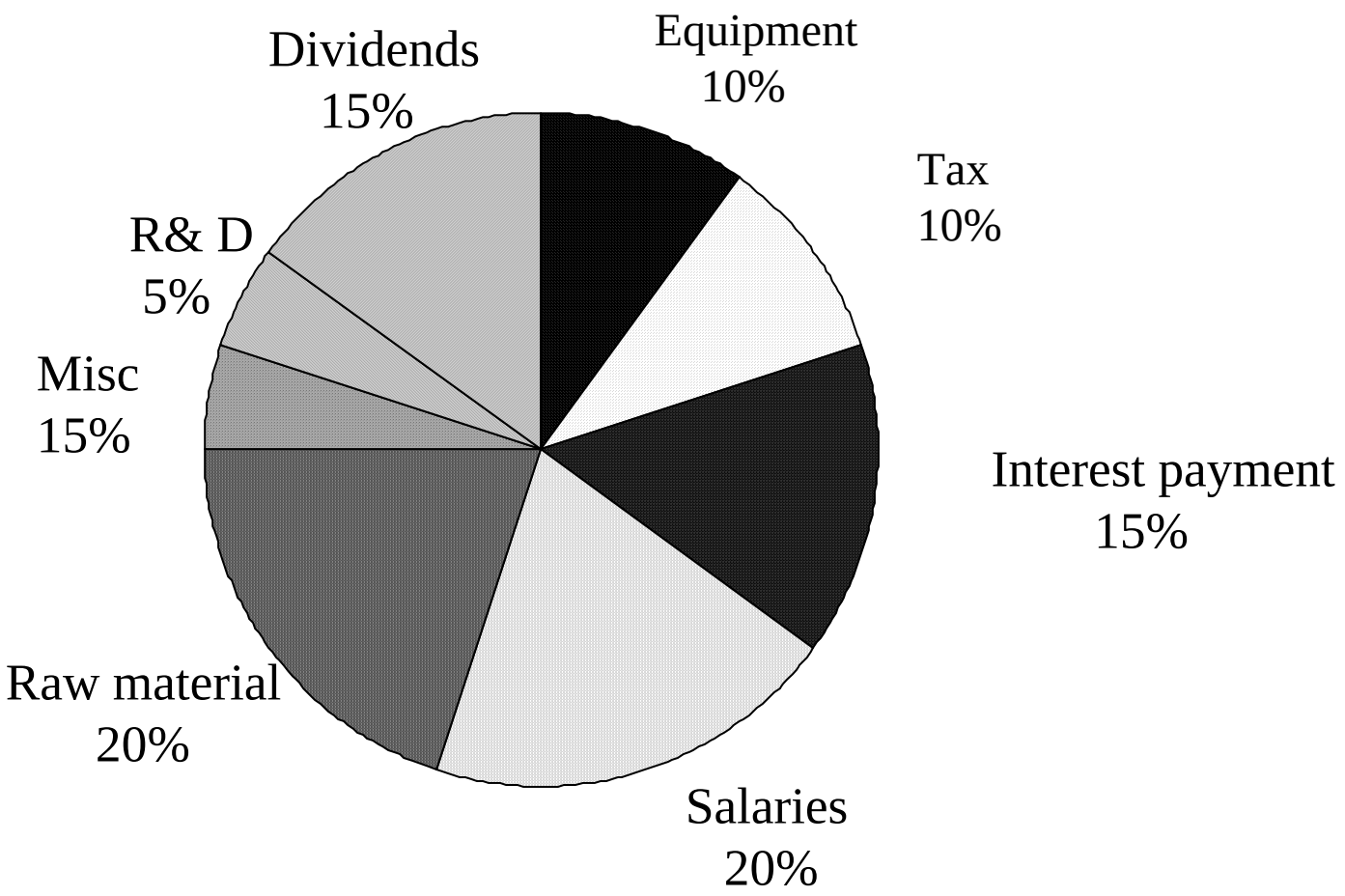
USE OF GRAPH


Total sales of textiles (in lakhs)
140
120
100
80
60
40
20
0
0
85
86
87
88
89
90
Year

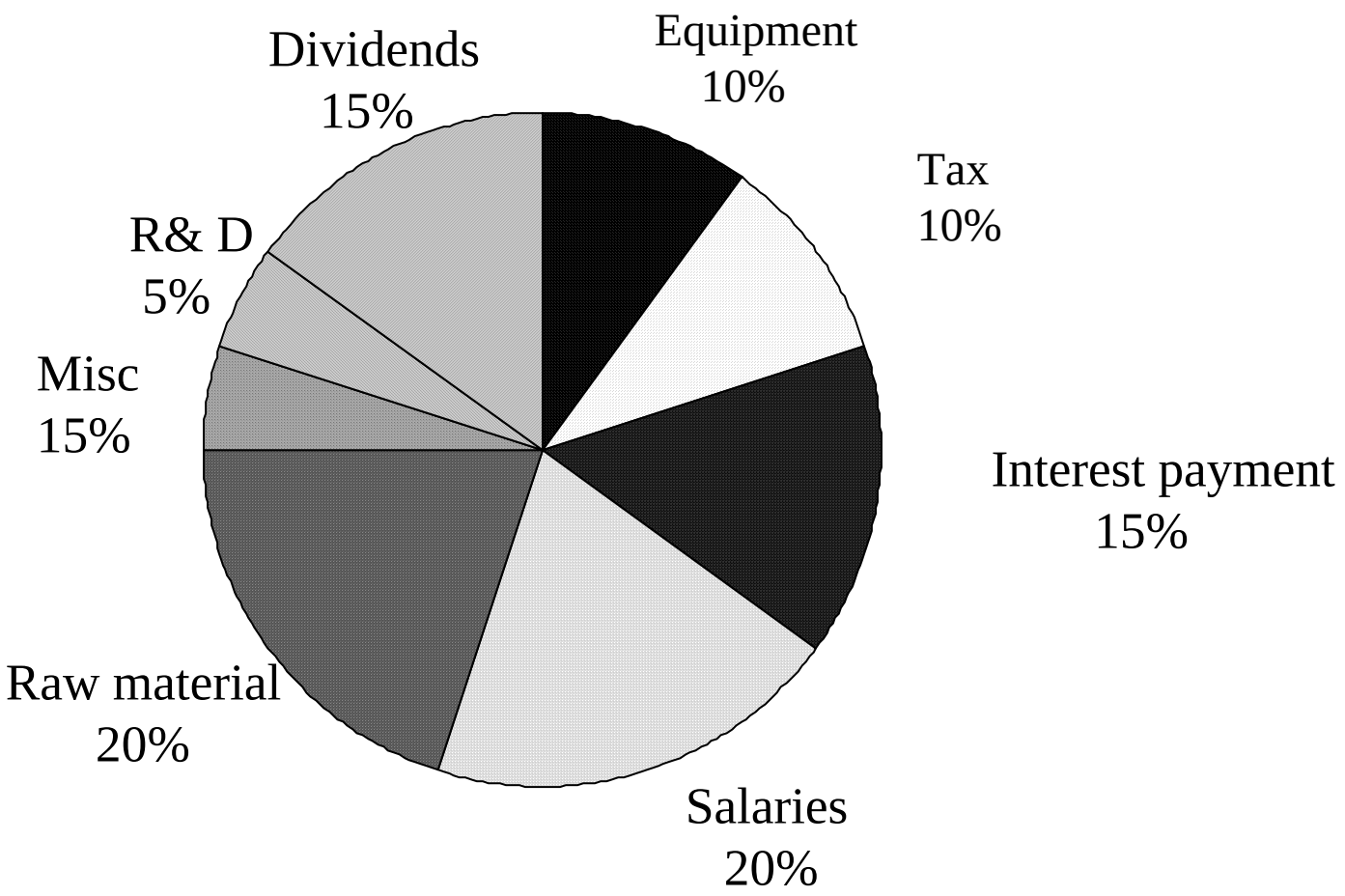
BAR CHART


No of employees
350
300
250
200
150
100
50
0
0
20
25
30
35
40
45
50
55
60
Age

PIE CHART


Dividends
15%
Equipment
10%
Tax
10%
R& D
5%
Misc
15%
Interest payment
15%
Raw material
20%
Salaries
20%

PIE CHART


Dividends
15%
Equipment
10%
Tax
10%
R& D
5%
Misc
15%
Interest payment
15%
Raw material
20%
Salaries
20%