

Con. 7289-13.

GS-9036

(3 Hours)

[Total Marks : 100

N.B. : (1) Question No. 1 is compulsory.

(2) Attempt any **four** out of remaining **six** questions.(3) Assume **suitable** data if **necessary**.1. Attempt the following (any **four**) :-

20

- (a) Explain in details block diagram of Analog and Digital communication system.
- (b) How data, Video, Voice is integrated on single platform ?
- (c) What are different types of network topology ?
- (d) Explain ISO-OSI layered architecture in detail.
- (e) What is the importance of logical layers in Telecommunications Management Networks (TMN) ?

2. (a) What are different data multiplexing techniques used in cellular system ?

10

(b) Explain modulator and demodulator used in Binary Phase Shift Keying (BPSK). What is probability of error ?

10

3. (a) What are the typical characteristics of connection-oriented and connection-less service ? What are merits and demerits of each ?

10

(b) Compare the four transfer modes viz. Circuit switching, Virtual circuit switching, Cell switching, Routing switching on the following aspects with proper reasoning :

10

- (i) Nature of connection
- (ii) Resource reservation
- (iii) Resource utilization
- (iv) Reliability
- (v) Ability to carry voice.

4. (a) Explain the following flow control mechanisms :

10

- (i) Window based flow control
- (ii) Rate based flow control.

(b) What is the difference between shared memory and shared medium buffering architecture ?

10

5. (a) How call is established and released in the ISDN ? Also describes the protocol stack for ISDN.

10

(b) What is traffic contract management ? What are its key elements ?

10

[TURN OVER

Con. 7289-GS-9036-13.

2

6. (a) What is need for Network Management ? Differentiate between the TMN functional architecture and TMN physical architecture. **10**
- (b) Explain in detail GSM architecture. State merits and demerits of GSM cellular system. **10**
7. Write short notes on any **four** :— **20**
- (a) Kerberos
 - (b) 3G UMTS Network
 - (c) Asynchronous Transfer Mode (ATM)
 - (d) Bluetooth technology
 - (e) Error correction and detection methods.
-

TE/IT/V (R)

17/5/13

CG/VR/S:

1st Half-13-Mina - (c)-90

Con. 6971-13.

GS-8925

(3 Hours)

[Total Marks : 100

- N. B. :** (1) Question No. 1 is **compulsory**.
(2) Solve any **four** questions from remaining Question Nos. 2 to 7.
(3) Draw neat **diagrams** wherever **necessary**.

1. (a) Explain homogeneous coordinate system. 5
(b) Explain in brief Workstation based architecture. 5
(c) Describe geometric modeling in case of V. R. 5
(d) Compare bitmap and vector-based graphics. 5
 2. (a) State the matrices of 2 D object for scaling and rotation, also draw the diagrams. 10
(b) Describe the Sutherland-Hodgeman algorithm for polygon clipping. 10
 3. (a) Describe the following terms (any two) :— 10
(i) Thresholding
(ii) Dithering
(iii) Antialiasing.
(b) Define Virtual Reality. Explain the components of VR. 10
 4. (a) Describe collision detection in VR. 10
(b) Describe input and output devices for VR. 10
 5. (a) Explain B-spline curves. 10
(b) Describe scanline algorithm for polygon filling. 10
 6. (a) Describe Motion Control method. 10
(b) Write DDA line drawing algorithm. Compare DDA with Bresenham's line drawing algorithm. 10
 7. Write short notes on :— 20
(a) Parallel projection
(b) Graphics rendering pipelines
(c) VR applicatons
(d) Comparison between RGB and CMY colour model.
-

IT Sem V
OS for Computer Devices

10/5/13

Con. 7048-13.

GS-8796

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** questions from the **remaining** questions.
(3) Assume **suitable** data whenever **necessary**.

1. (a) What is disk scheduling ? Explain various disk scheduling algorithms. 10
(b) Explain various system calls with appropriate syntaxes. 10
 2. (a) Explain necessary and sufficient conditions for deadlock, also explain how a resource allocation graph determines a deadlock. 10
(b) What is Kernel ? Describe briefly the approaches of designing Kernel. 10
 3. (a) Draw and explain architecture of RTOs. 10
(b) Explain programmed I/o and DMA. 10
 4. (a) What is semaphore ? Explain different types of semaphores. 10
(b) Write a short note on File Access Methods. 10
 5. (a) What is mutual exclusion ? Explain Peterson's algorithm for mutual exclusion. 10
(b) What are the characteristics of real time systems ? 10
 6. (a) What are preemptive and non-preemptive algorithms ? Explain any two with the help of example. 10
(b) Write a short note on buffering techniques. 10
 7. Write short notes on :— 20
 - (a) User threads and Kernel threads
 - (b) Race conditions
 - (c) Demand paging
 - (d) Monitor.
-

AGJ 1st half (f+) 1

Con. 9966-13.

GS-9168

(3 Hours)

[Total Marks : 100

N.B. : (1) Question No. 1 is compulsory.

(2) Attempt any four questions from remaining six questions.

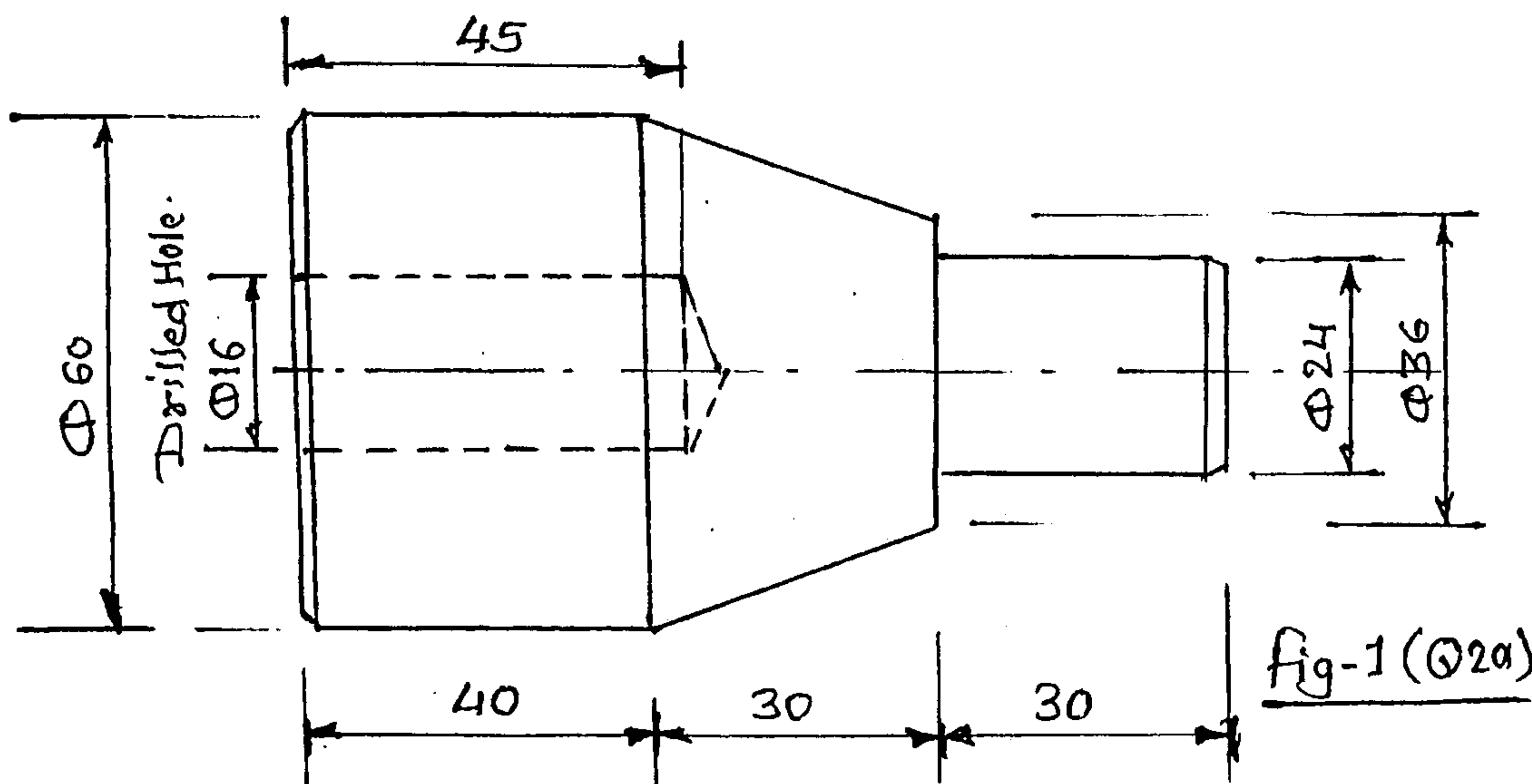
(3) Draw neat sketches wherever necessary.

(4) All dimensions mentioned are in mm.

(5) Use of standard code sheets for G and M codes is permitted.

1. (a) Explain the term ergonomics. Which are the factors to be considered for an ergonomic design of Car-Driver's seat. 8
- (b) Explain importance of computers in manufacturing. 6
- (c) Draw neat labelled sketch of a lathe showing main parts. 6

2. (a) For the given component shown in Fig-1, prepare a suitable process plan mention clearly the operation number, description of the operation, the machine used, tooling used and measuring instruments required. 12



- (b) What are objectives and advantages of SQC ? Explain any two SQC tools in detail. 8

3. (a) Prepare a CNC part programme for milling a slot of 6 width and 3 depth along with a 12 drilled hole as shown in fig.2 (Manual part programme using G and M codes.

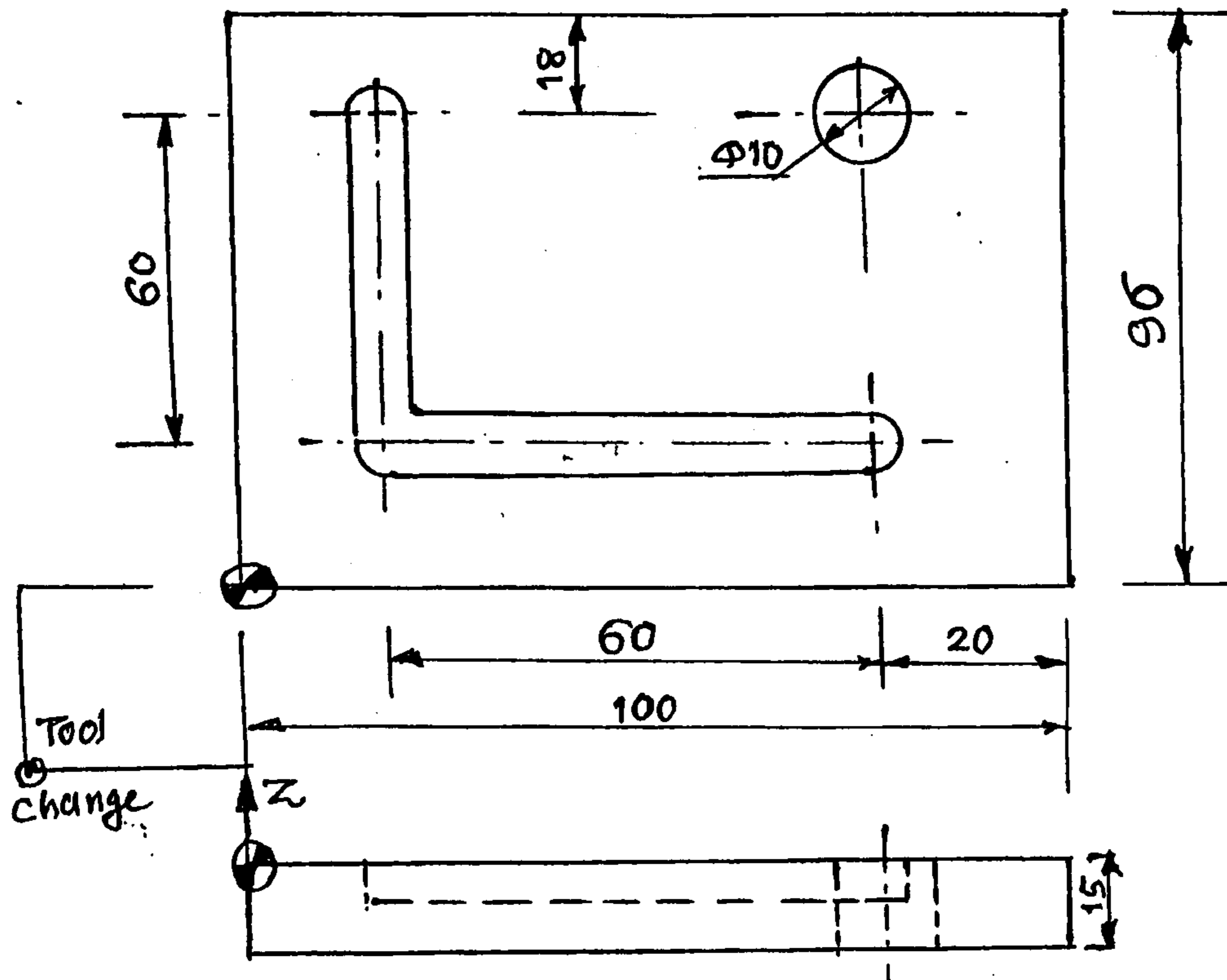


Fig- 2(Q3a)

- (b) What is resistance welding ? Explain any one resistance welding process. 8
4. (a) Construct \bar{X} and R chart for the following data and state whether the process is able to meet the specifications or not. 12

Batch No.	1	2	3	4	5	6
\bar{X}	23.76	23.77	23.75	23.79	23.75	23.83
R	0.07	0.11	0.06	0.08	0.04	0.05

$A_2 = 0.48, D_3 = 0, D_4 = 2.00$

- (b) Explain in detail, the concept of T.Q.M. Discuss various quality activities involved in T.Q.M. 8

Con. 9966-GS-9168-13.

3

5. (a) What is the role of demand management in Assemble-to-order environment ? **6**
(b) Write note on Just-In-Time (JIT). **8**
(c) What is MPS (Master Production Schedule) ? State its main objectives. On what basis it is prepared ? **6**
6. (a) Explain with neat sketch open loop and closed loop motion control system in NC/CNC machines. Also state their advantages. **8**
(b) Explain the extrusion process. **6**
(c) What are different types of plastics ? Explain properties of plastics. **6**
7. Write short notes on the following :- **20**
(a) Flexible manufacturing system
(b) Group Technology
(c) Types of capacities in capacity planning
(d) Differentiate product layout and process layout.
-

TE | IT | V (R.)

1 | 6 | 13

O O A D

499 : Con. No.-JP

Con. 10011-13.

GS-9279

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** questions, out of **remaining** questions.
(3) Draw **neat and clean** diagram, wherever **required**.
(4) Assume **suitable** data, if **necessary**.

Q1 A. Carefully study the following case study and answer the following questions.

Draw a class diagram for an information modeling system for a school. [10]

School has one or more Departments. Department offers one or more Subjects. A particular subject will be offered by only one department. Department has instructors and instructors can work for one or more departments. Student can enrol in upto 5 subjects in a School. Instructors can teach upto 3 subjects. The same subject can be taught by different instructors. Students can be enrolled in more than one school.

Q1. B Explain the following with suitable examples [10]
(a) Association
(b) Aggregation
(c) Multiplicity
(d) Generalization

Q2. A Explain the different types of Cohesion and Coupling [10]

Q2. B What is Requirement? Explain the different types of Requirements in detail. [10]

Q3. A Write the problem statement and Draw a Deployment diagram for an online "Airline Reservation System" [10]

Q3. B What are the design principles? Explain the difficulties and risk in design? [10]

Q4. A Draw the Sequence diagram for the following scenario. [10]

A customer wants to draw money from his bank account. He enters his card into an ATM (automated teller machine). The ATM machine prompts "Enter PIN". The customer enters his PIN. The ATM (internally) retrieves the bank account number from the card. The ATM encrypts the PIN and the account number and sends it over to the bank. The bank verifies the encrypted account and PIN number. If the PIN number is correct, the ATM displays, "Enter Amount". Draws money from the bank account and pays out the amount.

Q4. B Draw the Activity diagram for the scenario in Q4 (a), show swim lanes [10]

[TURN OVER

Q5. A Draw Use Case diagram for the following system, clearly show the include and extends relationship between usecases [10]

A computerized library system for a university keeps track of all books and periodicals in the library and their check-out status. Checkout and return are automated through a bar code reader (an external device). The library system also interfaces with an external relational database which stores information about the library users (students, faculty, and staff), including whether they have any library items checked out. . Library users can access the catalog and recall books and periodicals. Library employees have the same access as well as additional capabilities (e.g., listing the status of an item).

Q5. B Differentiate between static and Dynamic modeling in detail [10]

Q6. A. Enlist the design Pattern and explain any two Design pattern [10]

Q6. B. For a Library management system, design the test cases for the "issue and return of book" [10]

Q7. Write Short Notes on: (Any Two) [20]

- a) Testing Strategies
 - b) User Interface Design Principles
 - c) Framework and Components
 - d) Software Quality Assurance
 - e) Mapping Model to Code
 - f) State Modelling in UML
-