Web Technologies

Con. 382–18.   DA–6193

(3 Hours)   [Total Marks : 100

N.B. : All questions are **compulsory.**

1. Attempt **both** the questions.
   (a) Explain List Tags in HTML.   5
   (b) How Radio and Checkbox controls can be created in HTML ?   5

2. Attempt any **three** :—
   (a) Write a short note on E-mail.   5
   (b) What is uniform resource locator (URL) ?   5
   (c) Write short note on HTTP protocol.   5
   (d) Explain the concept of search engine.   5

3. Attempt any **three** :—
   (a) List and explain Block Level formatting tags.   5
   (b) Write a short note on Serverside Imagemaps.   5
   (c) Write a short note on HTML. Frame tags.   5
   (d) Explain the different approaches to style sheets.   5

4. Attempt any **three** :—
   (a) Explain the concept of Java Script Objects.   5
   (b) Write a short note on if....else statement in JavaScript.   5
   (c) List and explain various Math function in JavaScript.   5
   (d) Explain onDragDrop, onError, onFocus and onKeyDown events.   5

5. Attempt any **three** :—
   (a) Write a short note on XML.   5
   (b) Explain the structure of an XML document.   5
   (c) Write a short note on XML Schemas.   5
   (d) What is XSL ?   5

6. Attempt any **three** :—
   (a) What is mean by Server-side web scripting ?   5
   (b) Explain the concept of Passing information between pages in PHP.   5
   (c) Write a short note on Arrays and Array Functions in PHP.   5
   (d) Explain PHP error handling techniques.   5

7. Attempt any **three** :—
   (a) Explain the concept of Session Handling Methods in PHP.   5
   (b) How E-mail can be send using PHP ?   5
   (c) Write a PHP program to display the content of a student table (rollno, name   5
       and percentage)
   (d) Write a PHP program to accept the employee details (empno, empname) from   5
       the HTML page and store the details in a database table.

[**TURN OVER**

Con. 382–18.   DA–6193

(3 Hours)   [Total Marks : 80

N.B. : All questions are **compulsory**.

1. Attempt any **two** :—
   (a) Write a short note on E-mail.   5
   (b) What is uniform resource locator (URL) ?   5
   (c) Write short note on HTTP protocol.   5

2. Attempt any **two** :—
   (a) List and explain Block Level formatting tags.   5
   (b) Write a short note on Serverside Imagemaps.   5
   (c) Write a short note on HTML Frame tags.   5

3. Attempt any **two** :—
   (a) Explain the concept of JavaScript Objects.   5
   (b) Write a short note on if....else statement in JavaScript.   5
   (c) List and explain various Math function in JavaScript.   5

4. Attempt any **two** :—
   (a) Explain the concept of search engine.   5
   (b) Explain the different approaches to style sheets.   5
   (c) Explain onDragDrop, onError, onFocus and onKeyDown events.   5

5. Attempt any **two** :—
   (a) Write a short note on XML.   5
   (b) Explain the structure of an XML document.   5
   (c) Write a short note on XML Schemas.   5

6. Attempt any **two** :—
   (a) What is mean by Server-side web scripting ?   5
   (b) Explain the concept of Passing information between pages in PHP. 5
   (c) Write a short note on Arrays and Array Functions in PHP.   5

7. Attempt any **two** :—
   (a) Explain the concept of Session Handling methods in PHP.   5
   (b) How E-mail can be send using PHP ?   5
   (c) Write a PHP program to display the content of a student table (rollno, name   5
       and percentage)

8. Attempt any **two** :—
   (a) What is XSL ?   5
   (b) Explain PHP error handling techniques.   5
   (c) Write a PHP program to accept the employee details (empno, empname) from   5
       the HTML page and store the details in a database table.

P4–Exam.–2018-1-52

Con. 383–18.

DA–6197

(3 Hours)

[Total Marks : 80

N.B.: (1) **All** questions are **compulsory**.

(2) **Each** question carries **10** marks.

(3) Internal choices are there in **each** question.

(4) **Figures** to the **right** indicate **full** marks.

Q.1. Attempt any **two** :–   **10**

(a) Show that $f(Z) = Z^3$ is Analytic everywhere in Complex plane.   **5**

(b) Solve : $x^5 - 1 = 0$ **5**

(c) Find the image of the line $x + y = -1$ under the map $W = \dfrac{1}{Z}$.   **5**

Q.2 Attempt any **two** :   **10**

(a) Find the Laplace Transform of $t\,\text{Sin}2t + \text{Cosh}t$.   **5**

(b) Evaluate $\displaystyle\int_0^\infty \frac{e^{-t} - e^{-3t}}{t}\, dt$ by u sin g Laplace Transform.   **5**

(c) Find the Laplace Transform of $\text{Sin}2t.\,\text{Cos}3t$.   **5**

Q.3 Attempt any **two** :–   **10**

(a) Find $L^{-1}\left[\log\left(\dfrac{S+1}{S+2}\right)\right]$ **5**

(b) Find inverse Laplace Transform of $\dfrac{S+3}{(S+1)(S^2+4)}$ **5**

(c) Find $L^{-1}\left[\tan^{-1}\left(\dfrac{2}{S}\right)\right]$ **5**

Q.4 Attempt any **two** :   **10**

(a) Find the Residues of $f(z) = \dfrac{1}{(z+1)(z-2)^2}$ at their Poles.   **5**

(b) Find inverse Laplace Transform of $\dfrac{S+3}{(S-1)(S^2-9)}$ **5**

(c) Evaluate $\displaystyle\int_C \frac{dz}{(z+1)(z-2)}$ where 'C' is $|z| = 1.5$ **5**

[**TURN OVER**

③

Q.5   Attempt any **two** :   **10**

     (a) Evaluate $\int\limits_{0}^{\infty}\dfrac{dt}{1+t^2}$ **5**

     (b) Evaluate $\int\limits_{0}^{1}\dfrac{x^p - x^q}{\log x}dx$ where p, q $\geq$ 0.   **5**

     (c) Evaluate $\int\limits_{0}^{\infty}5^{-4x^2}dx$.   **5**

Q.6   Attempt any **two** :   **10**

     (a) Obtain Fourier Cosine transform of $f(t) = e^{-t} + e^{3t}$ **5**

     (b) Obtain Fourier Series of $f(x) = x|x|$ in $(-\pi, \pi)$ **5**

     (c) Obtain Half range Sine Series of x^2 in $(0, \pi)$ **5**

Q.7   Attempt any **two** :   **10**

     (a) Evaluate $\int\limits_{0}^{1}\int\limits_{0}^{x}(x+y)dy\,dx$.   **5**

     (b) Find the Area Bounded by $y = x$ and $y = x^2$.   **5**

     (c) Evaluate $\int\limits_{-1}^{1}\int\limits_{0}^{2}\int\limits_{0}^{4}x^3yz^2\,dz\,dx\,dy$.   **5**

Q.8   Attempt any **two** :   **10**

     (a) Evaluate $\int\limits_{0}^{1}x\left[\log\left(\dfrac{1}{x}\right)\right]^4 dx$ **5**

     (b) Find the Volume Bounded by $x^2 + y^2 + z^2 = 4$ and $x = 0$, $y = 0$ and $z = 0$ by using Spherical Coordinates.   **5**

     (c) Evalaute $\int\limits_{0}^{1}\int\limits_{0}^{x}dy\,dx$ by using Polar Coordinates.   **5**

④

(3 Hours)   [Total Marks : 100

N.B.: All questions are **compulsory**.

Q.1. Attempt any one :
   (a) State and Prove Necessary and Sufficient Condition equations for Analytic **10**
        function in Cartesian form.
   (b) Obtain Fourier Series of $x \sin x$ in $(-\pi, \pi)$.   **10**

Q.2 Attempt any **three** :
   (a) Express $\cos 3\alpha$ and $\sin 3\alpha$ in terms of power of $\sin \alpha$ and $\cos \alpha$. **5**
   (b) Solve : $x^5 - i = 0$ **5**
   (c) Derive the formula for $\sinh^{-1}(x)$.   **5**
   (d) Find the complex logarithm of (p) $1 - i$ (q) $- i$ **5**

Q.3 Attempt any **three** :
   (a) Find the bilinear Transformation which maps $0, i$ & ∞ to $1, 0$ & -1. **5**
   (b) Show that $f(Z) \equiv \bar{z}$ is not Analytic on $\mathbb{C}$.   **5**

   (c) Evaluate $\int_c \dfrac{dz}{(z+1)(z-2)}$ where 'C' is $|z| = 1.5$.   **5**

   (d) Find the square root of $21 - 20i$.   **5**

Q.4 Attempt any **three** :

   (a) Evaluate $\int_0^\infty e^{-2t} \sin^3 t \, dt$ by using Laplace Transform. **5**

   (b) Find the Lapalce Tranform of $t \cos t$ **5**

   (c) Find inverse Laplace Transform of $\dfrac{S+3}{(S+1)(S^2+4)}$ **5**

   (d) Find $L^{-1}\left[\log\left(\dfrac{S+1}{S+2}\right)\right]$ **5**

[TURN OVER

Q.5   Attempy any **three** :

     (a)   Evaluate $\int_0^{\frac{\pi}{2}} \sin^7\theta \cos^5\theta\, d\theta$ 5

     (b)   Evaluate $\int_0^1 x\left[\log\left(\frac{1}{x}\right)\right]^4 dx$ 5

     (c)   Prove that $\int_0^1 \frac{x^a-1}{\log x}\, dx = \log(1+a)$ where $a \geq 0$.   5

     (d)   Evaluate $\int_0^{\infty} 5^{-4x^2}\, dx$.   5

Q.6   Attempt any **three** :
     (a)   Obtain Fourier Transform of $f(x) = e^{-|x|}$.   5
     (b)   Obtain Fourier Series of e^x in $(0,2)$ 5
     (c)   Obtain Half range Sine Series of x^2 in $(0,\pi)$ 5
     (d)   Obtain Half range Cosine Series of x^2 in $(0,1)$.   5

Q.7   Attempt any **three** :

     (a)   Evaluate $\int_0^1\int_0^x (x+y)\, dy\, dx$ 5

     (b)   Evaluate $\int_0^1\int_0^2\int_0^3 xyz^2\, dz\, dx\, dy$ 5

     (c)   Find the Area in first quadrant Bounded by $x+y=2$ and $y=x^2$.   5
     (d)   Find the Volume Bounded by $Z=x^2+y^2$ and the plane $Z=9$.   5

⑥

(3 Hours) [Total Marks : 100

N.B. : (1) **All** questions are **compulsory**.
    (2) **Figures** to the **right** indicate **full** marks.

1. Attempt the following : (5 marks each)   **10**
   (a) Explain the priority encoder circuit with suitable block diagram.
   (b) Explain PCI bus arbitration in detail.

2. Attempt any **three** from the following : (5 marks each)   **15**
   (a) What is Buffer ? Explain Bidirectional Buffer.
   (b) Write a note on RAM and ROM.
   (c) What is Decoder ? Explain 3-to-8 line decoder circuit.
   (d) Explain PROM and FLASH memories.

3. Attempt any **three** from the following : (5 marks each)   **15**
   (a) Explain the Organization of microprocessor based system.
   (b) Draw and explain the system bus of 8085 microprocessor
   (c) What is memory interfacing ? Draw and explain the timing diagram of memory READ cycle.
   (d) Explain the peripheral or externally initiated operations of 8085 microprocessor based system.

4. Attempt any **three** from the following : (5 marks each)   **15**
   (a) Discuss any two addressing modes of 8085 microprocessor with suitable example.
   (b) Draw and explain the hardware and programming model of 8085 microprocessor.
   (c) Explain the instruction fromat of 8085 microprocessor based system with suitable example.
   (d) Explain the instruction calssification for 8085 microprocessor.

5. Attempt any **three** from the following : (5 marks each)   **15**
   (a) Draw and explain the functions of modern day computer system.
   (b) Explain the basic computer operations.
   (c) What is cache memory ? Explain the direct mapping technique of cache mapping.
   (d) Explain RAID memory. Write is advantages.

6. Attempt any **three** from the following : (5 marks each)   **15**
   (a) Explain the function of following directives.
     (i) DB (ii) DW (iii) DS (iv) ORG (v) using.
   (b) Explain program memory, data memory of 8051 microcontroller.
   (c) Explain features of 8051 microcontroller.
   (d) Explain A, B and PSW registers of 8051 microcontroller.

[TURN OVER

7. Attempt any **three** from the following : (**5** marks each)   15
    (a) Explain indirect addressing and direct addressing mode of 8051 microcontroller.
    (b) Explain following instructions of 8051 microcontroller.
         (i)   MOV < destination byte>, <source byte>
         (ii) MOV DPTR. #data 16
         (iii) CLR A
    (c) Explain following instructions of 8051 microcontroller.
         (i)   JNZ rel
         (ii) POP direct
         (iii) ORL <destination byte>, <source byte>
    (d) Explain DPTR register and SP register in 8051 microcontroller.

Con. 384–18.   **DA-6175**

(3 Hours)   [Total Marks : 80

N.B. : (1). **All** questions are **compulsory**.
         (2) **Figures** to the **right** indicate **full** marks.

1. Attempt any **two** from the following : (**5** marks each)   10
    (a) Explain tri state devices.
    (b) Explain static RAM and dynamic RAM memory.
    (c) What is decoder ? Explain 3 to 8 decoder in detail.

2. Attempt any **two** from the following : (**5** marks each)   10
    (a) Draw and explain the system bus of 8085 microprocessor.
    (b) Draw the architecture of 8085 microporcessor and explain Flags.
    (c) Explain SID, SOD, ALE, TRAP & HLDA pin of 8085.

3. Attempt any **two** from the following : (**5** marks each)   10
    (a) Draw and explain programming model of 8085 microprocessor.
    (b) What are different addressing modes in 8085 ? Explain with examples.
    (c) Explain the instruction format of 8085 microprocessor based system with suitable
         example.

4. Attempt any **two** from the following : (**5** marks each)   10
    (a) Explain EEPROM and EPROM.
    (b) Write the peripheral of externally initiated operations of 8085 microprocessor.
    (c) Write and explain mnemonics of any five arithmetic and logical operation of
         8085 microprocessor.

5. Attempt any **two** from the following : (5 marks each)   **10**
   (a) Draw the top level view of computer components and explain computer operations.
   (b) Explain the structure of modern day computer system.
   (c) What is cache memory ? Explain cache mapping.

6. Attempt any **two** from the following : (5 marks each)   **10**
   (a) Explain various interrupts in 8051 microcontroller.
   (b) Explain A, B and PSW registers of 8051 microcontroller.
   (c) Explain program memory and data memory of 8051 microcontroller.

7. Attempt any **two** from the following : (5 marks each)   **10**
   (a) Explain immediate addressing and direct addressing mode of 8051 microcontroller.
   (b) Explain port 1 in 8051 microcontroller.
   (c) Explain following instructions of 8051 microcontroller
       (i) PUSH direct
       (ii) POP direct
       (iii) CLR bit

8. Attempt any **two** from the following : (5 marks each)   ·   **10**
   (a) What is PCI ? Explain its features.
   (b) Explain the function of following directives.
       (i) EQU (ii) SET (iv) BIT (iv) code
   (c) Write a progtam to find smallest number from the array of 10 numbers stored
       in external memory RAM using 8051 microcontroller programming language.

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⑨
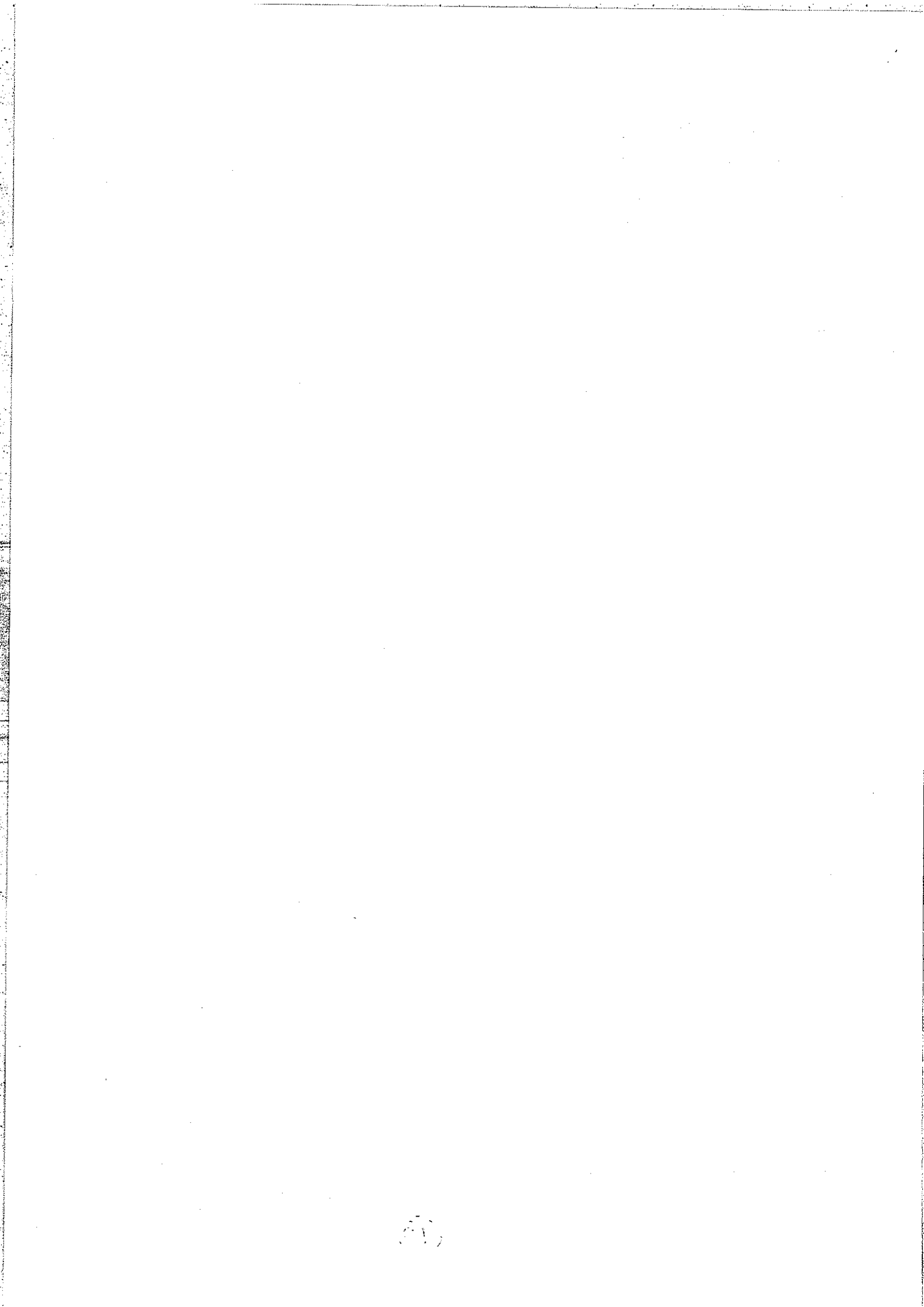
Con. 385-18.

DA-6173

(3 Hours)

[Total Marks : 100

N.B. : All questions from Q. 1 to Q. 7 are **compulsory**.

1. Attempt the following :—
    (a) Define Database System. State the advantages and disadvantages of DBMS.   5
    (b) What is the purpose of building a DBMS system ? State the E.F. Codd's rules.   5

2. Attempt any **three** from the following :—
    (a) What are the limitations of File processing systems ? How that can be overcome   5
        by using Database System ?
    (b) Write short note on Primary Key and Foreign Key.   5
    (c) What is RDBMS ? Explain the need for RDBMS.   5
    (d) Explain the architecture of database with neat label diagram.   5

3. Attempt any **three** from the following :—
    (a) Explain the basic building blocks of data model along with its need.   5
    (b) Write short note on (i) Object oriented model (ii) Relational model.   5
    (c) Explain the degrees of abstraction.   5
    (d) Write short note on business rules of data model.   5

4. Attempt any **three** from the following :—
    (a) Explain ER model with example.   5
    (b) Write short note on weak entity and strong entity.   5
    (c) What is normalization ? Explain BCNF with example.   5
    (d) State and explain the integrity rules in DBMS with example.   5

5. Attempt any **three** from the following :—
    (a) Explain the projection with example.   5
    (b) Explain the tuple relational calculus.   5
    (c) Explain joins in relational algebra and calculus with example.   5
    (d) Explain the following terms : syntax and semantics.   5

6. Attempt any **three** from the following :—
    (a) What is constraint ? Explain the types of constratints.   5
    (b) Distinguish between table and views.   5
    (c) Explain the following aggregate functions : avg(), count() and sum().   5
    (d) Explain nested sub queries with example.   5

7. Attempt any **three** from the following :—
    (a) Explain ACID properties of transaction.   5
    (b) Explain the concurrency control.   5
    (c) Explain time stamping method.   5
    (d) Write database recovery management in detail.   5

[TURN OVER

10

2

(3 Hours)

[Total Marks : 80

N.B. : (1) **All** questions from **Q.1** to **Q. 8** are **compulsory**.
     (2) **Each** question carry **5** marks.
     (3) Attempt any **two** sub-questions from **each** question.

1. Attempt any **two** from the following :—
  (a) What is the Database Management System ? Explain the purpose of DBMS.   5
  (b) Explain transaction management with example.   5
  (c) What are the applications of DBMS ? Write the advantages of DBMS.   5

2. Attempt any **two** from the following :—
  (a) What is data model ? Explain the hierarchical database.   5
  (b) Write short note on data abstration.   5
  (c) Explain the merits and demertis of network model.   5

3. Attempt any **two** from the following :—
  (a) What is normalization ? Explain the types of normalization in brief.   5
  (b) Write short note on aggregation and generalization.   5
  (c) Explain the ER diagram with appropriate example.   5

4. Attempt any **two** from the following :—
  (a) Explain relational database management with example.   5
  (b) What are the merits and demerits of object oriented model ?   5
  (c) Explain the types of entity along with example.   5

5. Attempt any **two** from the following :—
  (a) Explain selection and projection operator.   5
  (b) Explain the tuple relational calculus.   5
  (c) What is the difference between relational algebra and relational calculus ?   5

6. Attempt any **two** from the following :—
  (a) Define constraint. Explain the types of constraints with example.   5
  (b) What is aggregate function ? Explain any three aggregate functions with example.   5
  (c) Explain the following terms : table and views.   5

7. Attempt any **two** from the following :—
  (a) Write short note of ACID properties of transaction.   5
  (b) Explain the concurrency control.   5
  (c) Explain time stamping method based on protocol.   5

8. Attempt any **two** from the following :—
  (a) Write short note on domain relational calculus.   5
  (b) Explain the views with example.   5
  (c) Explain serializability in detail.   5

WA-JP-Exam.-1st Half-2018-114

Con. 386-18.

DA-6067

(3 Hours)

[Total Marks : 100

N.B. : (1) **All** questions are **compulsory**.
(2) Draw **neat** and **labelled** diagrams wherever **necessary**.

1. Attempt both the questions :   **10**
   (a) What is data communication ? Explain fundamental characteristics of data communication system.
   (b) Define computer network. Explain LAN, MAN, WAN.

2. Attempt any **three** from the following :—   **15**
   (a) Explain port address and MAC address in detail.
   (b) Explain the concept of protocols.
   (c) Explain the following : frequency, Phase, single and composite signal.
   (d) Explain the five components of data communication system.

3. Attempt any **three** from the following :—   **15**
   (a) Explain IPv4 addressing in detail.
   (b) Explain the tasks of network and transport layer in OSI model.
   (c) Explain transmission modes in terms of direction.
   (d) Explain with proper diagram TCP/IP protocol suit.

4. Attempt any **three** from the following :—   **15**
   (a) Explain hamming distance with example.
   (b) Write short note on stop and wait ARQ.
   (c) Explain the concept of quantization.
   (d) What is error detection technique ? Explain checksum in detail.

5. Attempt any **three** from the following :—   **15**
   (a) What is transmission impairment ? Explain Attenuation in detail.
   (b) What are the different possible way of transmitting data.
   (c) Explain twisted pair cable in detail with advantages and disadvantages.
   (d) Explain in detail Digital to Analog conversion.

6. Attempt any **three** from the following :—   **15**
   (a) What is router ? Explain characteristics of routing algorithm.
   (b) Explain Mesh and tree topology in detail.
   (c) Explain the concept of Packet Switching in detail.
   (d) What is noise ? Explain different categories of noise.

7. Attempt any **three** from the following :—   **15**
   (a) Compare IPv6 and IPv4.
   (b) Write short note on Unicast, Multicast and Broadcast.
   (c) Draw and explain IPV6 header format.
   (d) Write short note on Dynamic Host Configuration Protocol (DHCP).

[TURN OVER

N.B. : (1) **Each** questions carries **5** marks.

      (2) Attempt any **two** questions.

1. Attempt any **two** of the following :—   10
   - (a) Write short note on Analog and Digital signal.
   - (b) Explain signal propagation with example.
   - (c) Explain different protocols standards.

2. Attempt any **two** from the following :—   10
   - (a) Draw the diagram of OSI model and give the characteristics of physical layer ?
   - (b) Explain IPv4 addressing.
   - (c) Compare the OSI and TCP/IP reference model.

3. Attempt any **two** from the following :—   10
   - (a) What is error detection ? Explain parity check in detail.
   - (b) Explain the concept of CRC.
   - (c) Write short note on Hamming distance

4. Attempt any **two** from the following :—   10
   - (a) Explain the five components of data communication system.
   - (b) Explain with proper diagram TCP/IP protocol suit.
   - (c) Explain checksum with example.

5. Attempt any **two** from the following :—   10
   - (a) Explain Coaxial cable with proper diagram.
   - (b) Explain the concept of Analog to Digital conversion.
   - (c) Define transmission impairment and explain its types.

6. Attempt any **two** from the following :—   10
   - (a) Explain circuit switching in detail.
   - (b) Explain star and Ring topology with its advantages.
   - (c) Explain Time division switching in detail.

7. Attempt any **two** from the following :—   10
   - (a) Explain IPV6 addressing.
   - (b) Distinguish between IPV4 header and IPV6 header.
   - (c) Explain IPV6 auto configuration via DHCP.

8. Attempt any **two** from the following :—   10
   - (a) Differentiate between wired and wireless media.
   - (b) What is routing. Explain routing metrics.
   - (c) Explain IPV6 extension headers.

Nov–18

F.Y.B.Sc.(I.T)

(Sem–II)

Page (13)

(13)