

Note:

1. Question 1 is compulsory.
2. Answer any 4 out of the remaining questions.
3. Answers to subsections must be answered together.

- Q1. (a) Explain the term n-tier architecture with an example. (05)
(b) Describe in brief what you understand by SOA. (05)
(c) Give an overview of different types of middleware models (05)
(d) Give a brief overview of .net architecture. (05)

- Q 2. (a) Describe the steps involved in deploying an EJB application. (10)
(b) Describe the CORBA architecture with the help of a block diagram (10)

Q.3 Consider an online student admission system, which maintains entries for students and courses they enroll for. For each student name, age, marks and address etc. are stored. For each course, store the course name, subject area, List of books, faculty name, number of students etc. Further for each course also store the schedule, and marks of students for the current offering.

- (a) Give the DTD for the XML schema for the described system. (10)
(b) Write the following query in XQuery:
"Find all students who have scored an "A" grade in more than two courses in a Semester". (10)

- Q.4.(a) What are the different types of "beans" one can define in an EJB application. Illustrate using an online banking system as an example application. (10)
(b) Describe the structure of a WSDL file using an example (10)

- Q.5 (a) What do you mean by a web service? Describe the different Web Services standards available. (10)
(b) What is the role of IDL? Using CORBA IDL define interfaces to objects in an online library management system. (10)

- Q.6 (a) What do you mean by a Enterprise Service Bus (ESB)? How is it used to implement a SOA based application. (10)
(b) What are CORBA services? Describe any two CORBA services. (10)

Q.7. Write a brief note on the following :

- (a) COM and DCOM (10)
(b) JAVA RMI (10)
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TE (IT) Sem VI
Information & Network Security

11/5/2013

ws Con-2013-1

Con. 7257-13.

GS-9810

(3 Hours)

[Total Marks : 100

- N.B 1) Question No.1 is Compulsory.
2) Attempt any **Four** out of remaining

- Q.1. (a) Consider online examination system, where students can login and answer questions online. For this system identify vulnerability, threat and attacks (05)
(b) Describe and explain the Denial of Service (DOS) attack in a network. What controls are required to avoid it. (05)
(c) Describe any two malicious program flaws (05)
(d) Explain covert channels and why they are a security threat. (05)
- Q.2. (a) Explain "Buffer Overflow" and "Incomplete Mediation" flaws in a program and how they can be used to attack the system. (10)
(b) Describe in detail how Antivirus programs work. (10)
- Q.3. (a) What are the measures provided by an Operating System for security (10)
(b) List and describe the flaws present in the TCP protocol that can lead to security breaks. (10)
- Q.4. (a) Describe the working of the RSA algorithm. Illustrate the working using the values of $p = 5$ and $q = 7$. (10)
(b) Explain the concept of a Digital Signature". Describe a public key method to create and check digital signatures. (10)
- Q.5. (a) How are hash functions useful for information Security. Explain any one Hash Security algorithm. (10)
(b) Explain the role of a firewall in securing a network. Describe different types of firewalls (10)
- Q.6 (a) Explain the working of Kerberos in detail (10)
(b) Describe different types of Intrusion Detection Systems (IDS) (10)
- Q.7. Write a detailed note on the following topics ;
1. Secure Sockets Layer (SSL) (10)
2. DES Algorithm (10)
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N.B. :(1) Question No. 1 is compulsory.

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

(3) Assume suitable data if required.

(4) Figures at right indicate full marks.

1. (a) Explain object identity and type constructor. 5

(b) Suppose that we decompose the schema $R = \{ A, B, C, D, E \}$ into : 5

$$R_1 = \{ A, B, C \} \text{ and}$$

$$R_2 = \{ A, D, E \}$$

Show that this decomposition is lossless join decomposition if the following set, F, of functional dependencies holds.

$$A \rightarrow BC$$

$$CD \rightarrow E$$

$$B \rightarrow D$$

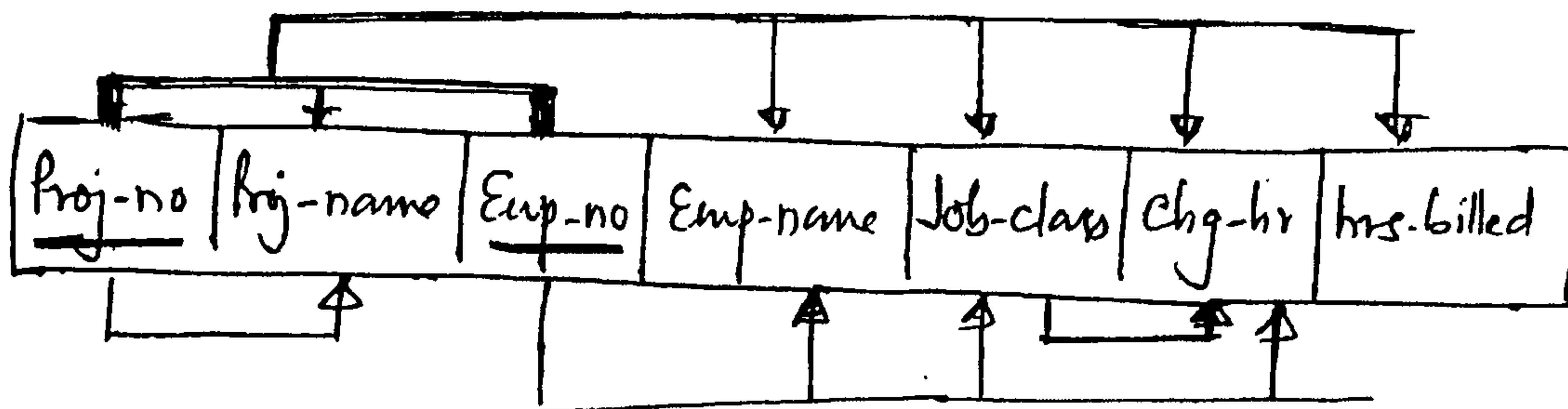
$$E \rightarrow A$$

(c) Explain factless fact table with example. 5

(d) Explain BCNF with suitable example. 5

2. (a) Describe the event-condition-action model for triggers. Why triggers are required ? 10

(b) Consider a dependency diagram of Relation R. 10



(i) The relation R is in which normal form ? Justify your answer.

(ii) Normalize relation R upto third normal form.

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Con. 7342-GS-1006-13.

2

3. (a) Explain design and implementation issues in Mobile Database. **10**
 (b) Explain in detail the major steps in the ETL process. **10**
4. (a) Explain the concept of referential integrity with suitable example. **10**
 (b) Consider an Employee table with a multivalued dependents attribute Employee. **10**

Eid	Ename	Position	Dependents	
			Ename	Dage
E001	Sachin Tenduklar	Manager	Sara	14
			Arjun	12
E002	Dr. H. K. Patil	Professor	Vaidehi	10

- (i) Define Employee table using nested relation in ORDBMS or OODBMS.
 (ii) Comment on the normalization rule violation if we define nested relation.

5. (a) Explain the architecture of Data-Warehouse in detail. **10**
 (b) Given the relation R with attributes A to J and the following set of functional dependencies : **10**

$$\begin{aligned}
 \text{FD} = \{ & \{A, B\} \rightarrow \{C\}, \\
 & \{B, D\} \rightarrow \{E, F\}, \\
 & \{A, D\} \rightarrow \{G, H\}, \\
 & \{A\} \rightarrow \{I\}, \\
 & \{H\} \rightarrow \{J\} \}
 \end{aligned}$$

- (i) What is the key of relation R.
 (ii) Decompose relation R into 2NF and 3NF.

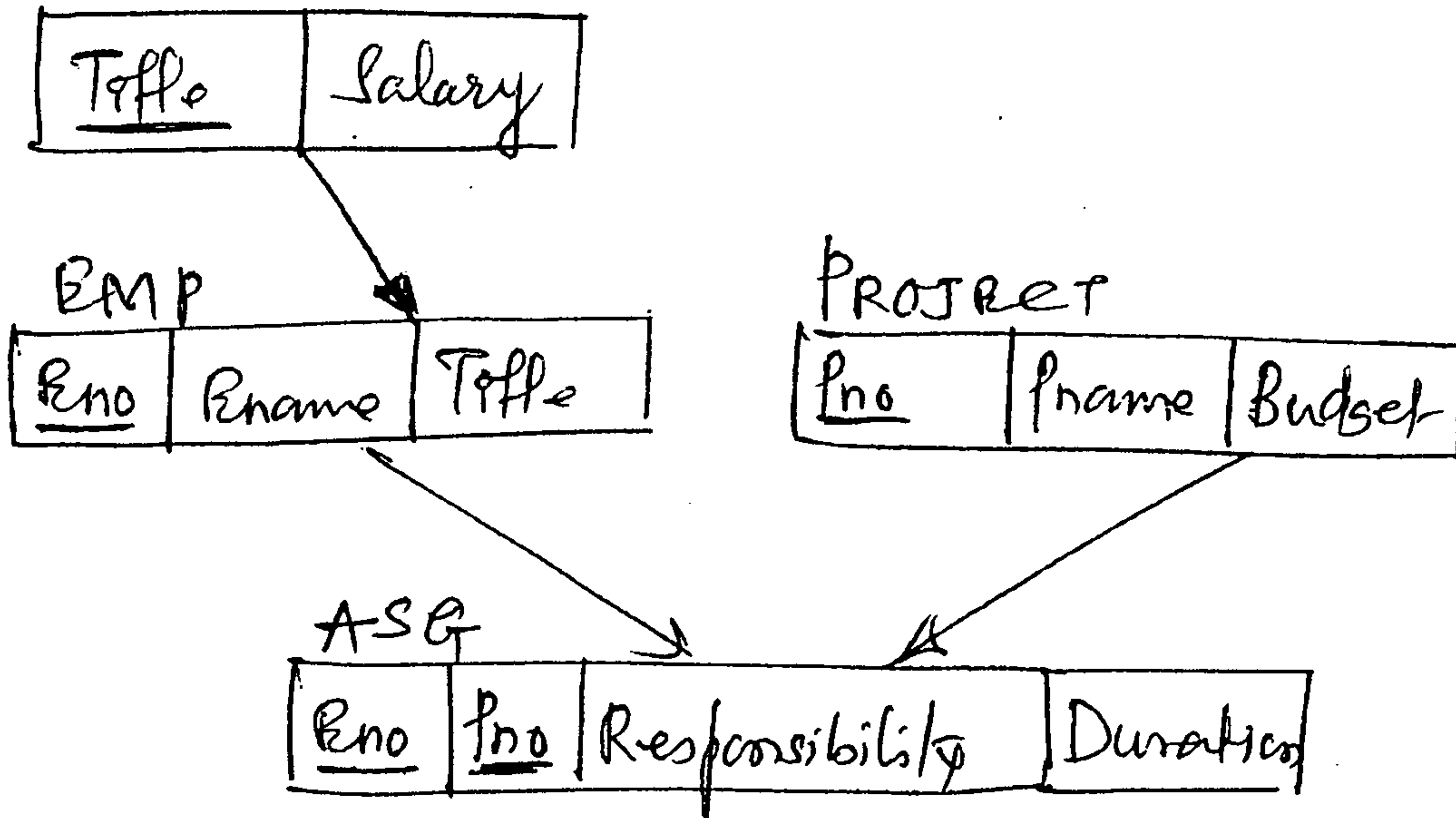
6. (a) Write short note on temporal Database.

10

(b) Consider following schema and PROJECT relation instance.

10

Pay



Project

P _{no}	P _{name}	Budget	Location
P ₁	Attendance System	1,50,000	Pune
P ₂	Payroll System	1,35,000	Mumbai
P ₃	Lux	3,10,000	Mumbai
P ₄	Maintenance	2,50,000	Delhi

- (i) Apply primary horizontal fragmentation (PHF) to PROJECT relation.
- (ii) Clearly state the different minterm predicates.
- (iii) State and derive the implications of minterm predicates.

7. (a) Explain Authorization in SQL.

5

(b) Compose primary key and object identity.

5

(c) Compose Data warehouse and Data marts.

5

(d) Write short note on parallel Database.

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FE-SEM-III (7-1.) (Rev.)

23/5/13
May 2013

S.E.

VT-F.H.Exam. May-13-55

Con. 9190-13.

GS-1141

(3 Hours)

[Total Marks : 100

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

(2) Attempt any **four** questions out of remaining **six** questions.

(3) **All** questions carry **equal** marks. (**20** marks **each**)

1. (a) Justify any five guidelines of metrics with respect to your project of choice. **10**
Explain it with suitable diagrams.
- (b) How would you reduce the maintenance cost of software and increase **10**
the re-usability of above project of choice ?
2. (a) Design a RMMM plan for a database project. Explain the plan with at least **10**
five risks and analyse the same.
- (b) What is the importance of change control ? Explain it with configuration **10**
items and baselines.
3. (a) What are the different tasks of software configuration management ? **10**
- (b) Justify the requirement of object oriented software Engineering. Which tests **10**
play important role in object oriented context ?
4. (a) List and explain the fundamental concepts for software design. **10**
- (b) Which tests are carried out during verification and validation ? Explain in **10**
detail.
5. (a) Explain the different techniques of software requirement analysis. **10**
- (b) Discuss the software project planning with the help of SRS. **10**
6. (a) List and explain the activities of version control. **10**
- (b) Explain basis path testing and cyclometric complex with example and diagram. **10**
7. Write short notes on (any **two**) :- **20**
 - (a) User interface design principles
 - (b) Impirical estimation model
 - (c) CMM.

7/6/73

T-E sem VI (Rev)

IT - ITME (May-June 2013)

D : PH (April Exam) 353

Con. 10035-13.

GS-1612

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question No. 1 is compulsory.
(2) Answer any **four** questions out of remaining **six** questions.
(3) Assume suitable data if **required**.

1. Answer any **four** questions :- 20
 - (a) Compare old economy and new economy.
 - (b) Describe methods for evaluating IT investment.
 - (c) Write about Automated Decision Support (ADS) system.
 - (d) Brief about wireless devices and their applications.
 - (e) List the major sources of data.

 2. (a) What is Computer Based Information System (CBIS) ? Explain difference between computers and information systems. 10
(b) Explain the major drivers and benefits of data warehousing to end users. 10

 3. (a) Explain Supply Chain Management (SCM) in detail. 10
(b) Define Global Information System (GIS). How GIS can facilitate global trade ? 10

 4. (a) Explain the Decision Support System (DSS) process in detail. 10
(b) Explain traditional EDI and Internet based EDI (Electronic Data Interchange). 10

 5. (a) Describe the role of IT in knowledge management. 10
(b) Explain the implementation of ERP with an example. 10

 6. (a) What is business model ? What are the major pressures in business environment ? 10
(b) What is the difference between EIS and ESS ? Give example. 10

 7. Write short notes on (any **four**) :- 20
 - (a) Levels of customer relationship management.
 - (b) Transaction processing system.
 - (c) Productivity paradox of IT
 - (d) Data visualization.
 - (e) Partner relationship management.
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- N.B. : (1) Question No. 1 is compulsory.
(2) Attempt any **four** questions out of remaining six questions.

1. (a) Write note on MVC architecture. 10
(b) Explain the life cycle of MIDlet. Justify the need of making function destroy App(boolean unconditional) as false and true. 10
2. (a) Design a MIDP application to generate following pattern on mobile screen using Custom Item Class. 10
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- (b) What is event handling in J2ME ? Explain types of event handling. Differentiate between ItemStateListener and CommandListener. 10
3. (a) What are JDBC drivers ? State its types and elaborate each of them. 10
(b) Explain architecture of J2EE5. 10
4. (a) Differentiate between : 10
(i) Applet and MIDlet
(ii) MIDlet and Servlet.
(b) Write a MIDP application to create an exclusive list performing functions such as calculating area of triangle, rectangle, circle and square using choice-Group Class. 10
5. (a) Differentiate between :— 10
(i) High level API and Low level API.
(ii) List and Choice Group.
(b) Create a MIDP application to display smiley face on mobile screen using canvas class. 10
6. (a) Explain life cycle of servlet. 10
(b) Explain web centric approach and EJB centric approach of creating web application. 10
7. Write short note on :— 20
(a) Piconet and Scatternet.
(b) Struts.
(c) Hibernat.
(d) Multipart Message.