Question Paper Set of

T.Y.B.SC.IT. – Sem-VI

Regular Exam

University of Mumbai

April, 2018

Q. P. Code : 36144

(2½ Hours) **[Total Marks: 75]**

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labelled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt *any three* of the following: 10

a. Write a short not eon geospatial data.
b. List and explain various types of map projections.
c. Explain the data structure of a polygon coverage.
d. Explain any two types of raster data.

2. Attempt *any three* of the following: 10

a. List and explain various data creation techniques.
b. Write a short note on data conversion.
c. Explain the map to map and image to map transformation.
d. List and explain different types of geometric transformation.

3. Attempt *any three* of the following: 10

a. Explain various relationships between tables.
b. Explain the concept of normalization.
c. List and explain different types of map.
d. What is data classification? Explain.

4. Attempt *any three* of the following: 10

a. Write a short note on attribute data query.
b. Explain descriptive statistics.
c. What is the output of the following for a statement (slope = 1) AND (NOT(Aspect=4)).

Aspect

4	1	4	1	2	3	1	2
4	1	3	2	3	2	2	4
3	2	4	4	4	3	4	3
3	3	1	2	1	2	1	3
2	4	2	3	2	1	2	2
1	2	3	1	3	4	3	3
3	3	1	3	4	3	4	4
4	4	2	2	4	4	2	1

Slope

1	1	1	3	4	2	3	3
3	2	1	3	4	4	1	4
3	2	2	1	2	3	2	3
4	3	3	2	3	4	4	4
3	4	4	3	4	2	3	2
2	2	1	2	4	1	2	4
2	1	3	3	4	4	1	1
1	3	3	2	2	3	4	1

d. What do you understand by spatial data query?

5. Attempt *any three* of the following: 10

a. What is buffering? Write down the applications of buffering.
b. What do you mean by pattern analysis? Explain Nearest Neighboor analysis.
c. Write the purpose of the following map manipulation operations with example.
i. Erase ii. Update iii. Select iv. Eliminate V. Clip
d. What is local operation? Explain local operation with a single raster.

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6. **Attempt *any three* of the following:** 10

a. List and explain the elements of spatial interpolation.

b. Explain the Thin-Plate Splines local method.

c. What is spatial interpolation? What are spatial interpolation types? Explain any one type.

d. What is kriging? Explain universal kriging.

7. **Attempt *any three* of the following:** 15

a. Explain the following with example
   i. Association ii. Aggregation

b. Write the importance of control points in affine transformation.

c. Write a short note on map production.

d. Explain different types of graphs.

e. Explain the Density Estimation local method.

f. Explain the Thiessen Polygons local method.

(2½ hours)

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1. Attempt *any two* of the following: 10

a. Explain Boehm's principle for examining how to staff for software project.
b. Explain the three levels of processes and its attributes.
c. What are the five basic parameters that are involved in estimating the cost of a software project?
d. Explain the five symptoms of a project that is headed for trouble.

2. Attempt *any two* of the following: 10

a. List out the life-cycle phases of modern software development process. State the objectives of each phase.
b. Briefly explain the different artifacts in the management set.
c. Explain the technical perspective of software architecture.
d. Map the process exponent parameters of the COCOMO II model to the principles of a modern process.

3. Attempt *any two* of the following: 10

a. What is a workflow? Describe the major workflows involved in software development.
b. Write short note on life-cycle architecture milestone. List the engineering artifacts available at the life-cycle architecture milestone.
c. What is work breakdown structure? What are the issues associated with conventional work breakdown structure?
d. Write short note on minor milestones in a project life-cycle.

4. Attempt *any two* of the following: 10

a. With the help of diagram explain the default roles and responsibilities in a software line-of-business organization.
b. Briefly explain the four important disciplines that are critical to the management context and the success of a modern iterative development process.
c. What is configuration baseline? What are the different types of software change?
d. Explain the activities of software management team over the project life cycle.

5. Attempt *any two* of the following: 10

a. Explain the quality indicators that provide an indication of the quality of software system.
b. Define metrices. List out the basic characteristics of a good metric.

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c. Summarize process discrimination that result from difference in stakeholder cohesion.
d. With the help of diagram explain the two primary dimensions of process variability.

6. Attempt *any two* of the following: 10

a. With the help of diagram explain the difference between the progress profile of a modern project and conventional project.
b. Explain how a software cost model should be structured to best support the estimation of a modern software process.
c. Briefly explain the culture shifts in order to avoid friction in transitioning to modern software process.
d. How does balancing the top 10 software management principles achieve balance in software economics equation?

7. Attempt *any three* of the following: 15

a. State Boehm's top 10 principles about conventional software management performance.
b. Write short note on requirement and design set.
c. Explain top-down and bottom-up approach of cost and schedule estimating process.
d. Explain the automation aids and tool components that support the process workflows.
e. Define the following terms
i)Earned value ii)Actual Cost iii) Cost variance iv)Expenditure plan v)Schedule variance
f. List the characteristics of modern iterative development framework. Explain the steps to follow to transition to a mature iterative development process.

(2½ hours)

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1. Attempt *any two* of the following: **10**

a. What are the responsibilities of Transport layer in OSI Model?
b. Explain Subnetting giving example.
c. Explain fields related to Fragmentation in detail.
d. Write a note on Global Unicast Address that covers following:
Definition, Three levels of hierarchy.

2. Attempt *any two* of the following: **10**

a. Draw and explain ATMARP Packet.
b. Explain Timestamp Request and Reply of ICMP.
c. Explain Data Transfer Phase of Mobile communication.
d. Explain two node instability problem in Distance vector routing and its solution.

3. Attempt *any two* of the following: **10**

a. Explain Features of UDP in detail.
b. Write and Explain algorithm of input module of UDP.
c. Draw and explain TCP Segment Format.
d. Explain Timers in TCP.

4. Attempt *any two* of the following: **10**

a. Explain Association establishment in SCTP.
b. Explain Data Chunk of SCTP with its packet format.
c. Draw and explain DHCP client state transition diagram.
d. Explain Recursive and Iterative Resolution in DNS.

5. Attempt *any two* of the following: **10**

a. Explain NVT character set for option negotiation.
b. Explain Components of SSH.
c. Explain two FTP connections, control and data with diagram.
d. Explain DATA and ACK message of TFTP.

6. Attempt *any two* of the following: **10**

a. What is the role of Message Access Agent in email communication? Explain POP and IMAP.
b. Explain Web Based E-Mail.
c. Draw and explain RTP packet format.
d. How do you download a compressed audio/video using a web server and using a media server?

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7. **Attempt *any three* of the following:** 15

a. Write points of comparison between IPv4 and IPv6.
b. Explain types of links available in OSPF.
c. Explain Congestion policy of TCP.
d. Explain Generic Domain, Country Domain, and Inverse Domain.
e. Explain Persistence and non-persistence connection of HTTP.
f. How does Video compression (MPEG) happen?

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