Roll No. .....

TCS–601

B. TECH. (CS/IT)
(SIXTH SEMESTER)
MID SEMESTER EXAMINATION, 2018

COMPILER DESIGN

Time : 1:30 Hours

Maximum Marks : 50

Note : (i) This question paper contains *two* Sections.

(ii) Both Sections are compulsory.

Section—A

1. True-False : (1×5=5 Marks)
   (a) One benefit of Intermediate Code Generation is Retargeting.
   (b) Number of states in SLR and CLR are always equal.
   (c) Optimization phase in compiler is optional.
   (d) A viable prefix of a right sentential form is that prefix that contains a handle but no symbol to the left of the handle.

(e) If the attribute value of a node in parse tree is determined by the values at child nodes, then this attribute is called as inherited attribute.

2. Attempt any *five* parts : (3×5=15 Marks)

(a) Find the canonical collection of LR(0) items for the following grammar :

$S \rightarrow AaAb \mid BbBa$

$A \rightarrow \in$

$B \rightarrow \in$

(b) Differentiate Compiler and Interpreter.

(c) Find the FIRST and FOLLOW function for the following grammar :

$E \rightarrow E + T \mid T$

$T \rightarrow T*F \mid F$

$F \rightarrow (E) \mid id$

(d) Describe the various tasks performed by semantic analyzer.

(e) Write the design objectives of code optimization phase.

(f) Describe the different types of attributes used in SDTS/SDDS with examples.

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What is Transator ? Discuss the role of various phases of compiler in translation of source code to target code.

(b) What are the different types of parsing ? Explain the shift-reduce parsing. Write the different operations that are performed in shift-reduce parsing. Show the uses of these operations on the following grammar. (Assume the input string is id + id – id) :

$E \rightarrow E + E \mid E - E \mid id$

(c) Construct the LR(1) parsing table for the following grammar :

$S \rightarrow CC$

$C \rightarrow cC \mid d$

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Define Handle, Handle Pruning and Viable prefix. Explain the importance of Handle and Viable prefix in Bottom up Parsing.

(b) Explain the different issues that are considered in selecting the intermediate

codes. Discuss the different types of Intermediate Codes. Explain the different factors that decide the number of passes in compiler.

(c) Construct the LL(1) parsing table for the following grammar :

$S \rightarrow aAC \mid bB$

$A \rightarrow eD$

$D \rightarrow bE \mid \in$

$E \rightarrow eD \mid dD$

$B \rightarrow f \mid g$

$C \rightarrow h \mid i$

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What do you mean by Input Buffering ? Explain the different techniques of input buffering applied in compiler ?

(b) Write the algorithm for finding the canonical of LR(0) items. Define the closure(I) and goto(I, x) functions.

(c) Construct the Predictive parsing table for the following grammar :

$A \rightarrow iEtSS' \mid a$

$S' \rightarrow eS \mid \in$

$E \rightarrow b$

Roll No. .....

TCS–602

B. TECH. (CSE) (SIXTH SEMESTER)
MID SEMESTER EXAMINATION, 2018

SOFTWARE ENGINEERING

Time : 1 : 30 Hours

Maximum Marks : 50

Note : (i) This question paper contains two Sections.

(ii) Both Sections are compulsory.

Section—A

1. Fill in the blanks/True-False : (1×5=5 Marks)

(a) "Consider a system where, a heat sensor detects an intrusion and alerts the security company." What kind of a requirement the system is providing either functional or non-functional ? (True/False)

(b) Process adopted for one project is same as the process adopted from another project. (True/False)

(c) ..... is a measure/study to assess how practical and beneficial the software project development will be for an organization.

(d) ..... mainly depends on data flow diagrams and Data Dictionary.

(e) ..... is also known as functional testing.

2. Attempt any *five* parts : (3×15=15 Marks)

(a) What is Software Crisis ? Discuss the problems and their causes.

(b) Differentiate between user and system requirements.

(c) What is a data dictionary ? Explain.

(d) Explain Pair Programming and its benefits

(e) What is feasibility study and give its types.

(f) What is Requirement Elicitation ? Discuss important techniques for it.

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Discuss Iterative software development model with its merits and demerits.

(b) What is Rational Unified Process (RUP) ? Discuss the workflows.

(c) Differentiate between (any *two*) :

(i) Functional and Non-functional requirements.

(ii) Decision Tree and Decision Table

(iii) Program and Software.

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What is software testing ? Discuss its types.

(b) Give the outline structure of SRS. List out the important characteristics of a good SRS.

(c) Discuss Agile Manifesto and principles. Explain the process of scrum used for project management.

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What is Requirement Engineering Process ? Elaborate.

(b) Classify the following as functional/non-functional requirements for an Online Ticket Booking :

(i) System should only allow users to move to payment only when mandatory fields such as date, time, location has been mentioned.

(ii) Use of captcha and encryption to avoid bots from booking tickets.

(iii) Booking confirmation should be sent to user to the specified contact details.

(iv) User should be helped appropriately to fill in the mandatory fields, in case of invalid input.

(c) What is the purpose of Data Flow Diagrams ? Explain by constructing a context flow diagram level-0 DFD and Level-1 DFD for a Student Management System.

Roll No. .....

TCS–604

B. TECH. (CS/IT) (SIXTH SEMESTER)
MID SEMESTER EXAMINATION, 2018

COMPUTER NETWORK—I

Time : 1 : 30 Hours

Maximum Marks : 50

Note : (i) This question paper contains two Sections.

(ii) Both Sections are compulsory.

Section—A

1. Fill in the blanks/True-False : (1×5=5 Marks)

(a) Physical addressing is a function of the _____ layer.

(b) We need reliable transport service at the transport layer if data link transport on all the links in the route is reliable.

(True/False)

(c) One fundamental difference between HTTP and FTP is _____.

(d) Suppose a web server has 1000 outgoing TCP connections. The number of server side sockets used are _____.

(e) You configure your browser to open multiple simultaneous connections to a website ? (True/False)

2. Attempt any *five* parts : (3×15=15 Marks)

(a) Two hosts are directly connected with each other by a 2 Mbps link. How does it take to send a 1.5 MB file ?

(b) What are headers and trailers and how do they get added and removed ? Explain.

(c) Why will two ISPs at the same level of the hierarchy often peer with each other ? How does an IXP earn money ?

(d) What is the difference between network architecture and application architecture ?

(e) Suppose Alice and Bob are sending packets to each other over a computer network. Suppose Trudy positions herself in the network so that she can capture all the packets sent by Alice and send whatever she wants to Bob; she can also capture all the packets sent by Bob and send whatever she wants to Alice. List three malicious things Trudy can do from this position.

(f) List *five* non-proprietary Internet applications and the application-layer protocols that they use.

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) When transferring a file between two PCs, (at least) two acknowledgement strategies are possible. First, the file is chopped up into packets, which are individually acknowledged by the receiver, but the file transfer as a whole is not acknowledged. Second, the packets are not acknowledged individually, but the entire file is acknowledged when it arrives. What is your view regarding these two strategies ? Which one is best ? Can we have any other alternative strategy ?

(b) Suppose two hosts, A and B, are separated by 20000 kilometers and are connected by a direct link of R = 2 Mbps. Suppose the propagation speed over the link is 2.5×10^8 metres/sec. Suppose now the file is broken up into 20 packets with each packet containing 40000 bits. Suppose that each packet is acknowledged by the

receiver and the transmission time of an acknowledgment packet is negligible. Finally, assume that the sender cannot send a packet until the preceding one is acknowledged. How long does it take to send the file ?

(c) A packet switch receives a packet and determines the outbound link to which the packet should be forwarded. When the packet arrives, one other packet is halfway done being transmitted on this outbound link and four other packets are waiting to be transmitted. Packets are transmitted in order of arrival. Suppose all packets are 1500 bytes and the link rate is 2 Mbps. What is the queuing delay for the packet ? More generally, what is the queuing delay when all packets have length L, the transmission rate is R, x bits of the currently-being-transmitted packet have been transmitted, and n packets are already in the queue ?

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Explain Packet switching approaches using examples.

(b) Consider an application that transmits data at a steady rate (for example, the sender generates an N-bit unit of data every k time units, where k is small and fixed). Also, when such an application starts, it will continue running for a relatively long period of time. Answer the following questions, briefly justifying your answer :

(i) Would a packet-switched network or a circuit-switched network be more appropriate for this application ? Why ?

(ii) Suppose that a packet-switched network is used and the only traffic in this network comes from such applications as described above. Furthermore, assume that the sum of the application data rates is less than the capacities of each and every link. Is some form of congestion control needed ? Why ?

(c) Match the following to one or more layers of the OSI model :

(i) Format and code conversion services.

(ii) Establishes, manages, and terminates sessions.

(iii) Ensures reliable transmission of data.

(iv) Log-in and log-out procedures.

(v) Provides independence from differences in data representation.

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Translation, encryption and compression are some of the duties of the presentation layer in the OSI model. Which layer do you think is responsible for these duties in the Internet model ? Explain your answer. Which layer is responsible for Dialog control and synchronization in OSI model and Internet Model ?

(b) What is meant by a handshaking protocol ? What is the difference between non-persistent HTTP connection and persistent HTTP connection ?

(c) We need a three-stage space-division switch with N = 100. We use 10 crossbars at the first and third stages and 4 crossbars at the middle stage :

(i) Draw the configuration diagram.

(ii) Calculate the total number of cross-points.

F. No. : a-10

Roll No. .....

TCS–693

B. TECH. (CS/IT) (SIXTH SEMESTER)
MID SEMESTER EXAMINATION, 2018

FULL STACK WEB DEVELOPMENT

Time : 1:30 Hours

Maximum Marks : 50

Note : (i) This question paper contains *two* Sections.

(ii) Both Sections are compulsory.

Section—A

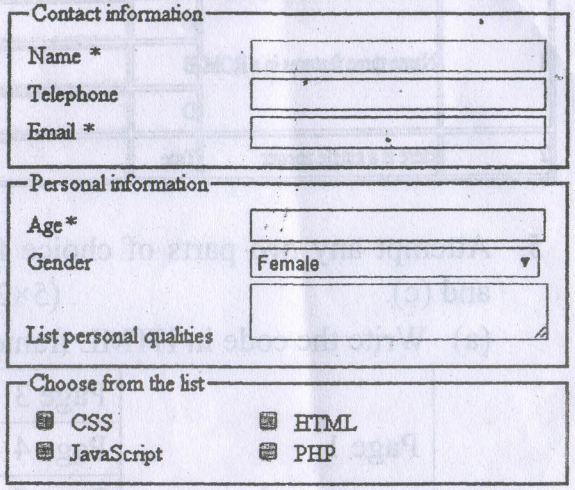
1. Fill in the blanks/True-False : (1×5=5 Marks)
   (a) In HTML ..... tag is used for horizontal raw.
   (b) The TITLE tag can be placed anywhere in the HTML document. (True/False)
   (c) Tables are used to control the layout of different visual elements. (True/False)
   (d) HTML tags tell a Web browser how to render a Web page. (True/False)
   (e) Tags are used in pairs. (True/False)

2. Attempt any *five* parts : (3×5=15 Marks)
(Define/Short Numerical/Short Programming/ Draw)
   (a) Write the structure of HTML program.
   (b) Write the neat block diagram, explain the CSS Box Model.
   (c) What are the various styles in CSS ?
   (d) Write the difference between POST and GET methods.
   (e) What do you mean meta tags ? Shaw their meaning and use with example.
   (f) Describe the function object in JavaScript with an example

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)
   (a) Write and explain any *five* HTML form elements that are required for obtaining user details for a typical online user registration process.
   (b) Write HTML 5 form elements and its attributes with suitable example.

   (c) Design a HTML form :
   Fill the form, required field marked*



   Submit information.

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)
   (a) Write a JavaScript code to test whether the given number is Armstrong number or not.
   (b) Explain the following HTML tags with their important attributes :
      (i) < form >
      (ii) < frameset >
      (iii) < select >
      (iv) < datalist >

(c) Write the code in HTML for the following Table :

Question No.	Question	Answer	Marks per Answer	Total Marks
1	Name three features in a ROM	A		5
		B		
		D		
2	Here is a single answer	True		5

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Write the code in HTML frame :

Page 1	Page 3
	Page 4
	Page 5
Page 2	

(b) Write an external cascading style sheet to define the font, font colour, background and foreground colours. Also use the CSS to design a web page with tables.

(c) Explain CSS and its types with example. Write about selectors in cascading style sheet.

Roll No. .....

TCS–671

B. TECH. (CSE/IT)
(SIXTH SEMESTER)
MID SEMESTER EXAMINATION, 2018

BIG DATA STORAGE AND PROCESSING

Time : 1 : 30 Hours

Maximum Marks : 50

Note : (i) This question paper contains two Sections.

(ii) Both Sections are compulsory.

Section—A

1. Write True-False : (1×5=5 Marks)
   (a) Visualizing Big Data presents no special challenges.
   (b) Hadoop Distributed File system was invented by Google.
   (c) Research can describe a Big Data application that has a proven return on investment (ROI) for an organization.
   (d) The more data is available the most successful with be the business application.
   (e) Google invented Big Data architecture with search Query engine.

2. Attempt any *five* parts : (3 × 5 = 15 Marks)

(Define/Short Numerical/Short Programming /Draw)

(a) What kind of analysis can be done on Big data ?

(b) How does a master node differ from the worker node ?

(c) What is Data Analytics ?

(d) What is a data ingest system ? Why is it an important topic ?

(e) What is MapReduce ? What are its benefits ?

(f) Define Data Mining.

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What are Google's contribution to Big data processing

(b) What is Big Data ? Describe the 4V model of Big Data ?

(c) Describe the Big Data processing architecture.

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What are the design goals for HDFS ?

(b) What are some of the hottest technologies visible in Big data processing ?

(c) Differentiate OLTP, OLAP and RTAP.

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What is Data Warehouse ? Explain the different approaches of creating Data Warehouse.

(b) Explain the difference between Entity relationship modelling and Dimensional modelling ?

(c) How does HDFS ensure security and integrity of data ?

Roll No. .....

TCS–691

B. TECH. (CS/IT)
(SIXTH SEMESTER)
MID SEMESTER EXAMINATION, 2018

IMAGE PROCESSING AND
COMPUTER VISION

Time : 1 : 30 Hours

Maximum Marks : 50

Note : (i) This question paper contains two Sections.

(ii) Both Sections are compulsory.

(iii) Write to the point answer, writing more will not fetch more marks.

Section—A

1. Fill in the blanks/ True-False : (1×5=5 Marks)

(a) Image is imported in form of matrix in MATLAB in which each cell is a pixel.

(True/False)

(b) ..... is the smallest unit of an image.

(c) A colour image can have ..... dimensions.

(d) ..... function in MATLAB can tell you the number of dimensions of a matrix.

(e) A pixel can have either ..... or ..... value in case of black and white image.

2. Attempt any *five* parts. (3×15=15 Marks)
(Write in 50-80 words)

(a) What is a Digital Image ?

(b) Write a MATLAB script to create an image which is invert of another image with name 'nature.jpg".

(c) What is the Difference between the image formation in the photographic camera and the human eye ?

(d) What is Weber's ratio ?

(e) Write a MATLAB code to change size of an image by a factor of 2 and 0.5 and then change the doubled and half image to grayscale.

(f) Write a MATLAB code to show different planes of a colour image with name "someimage.png".

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What are the fundamental steps of Digital image processing.

(b) Write a MATLAB program that reads an image 'test.jpg' and apply a 3 × 3 mask to remove the salt and pepper error.

(c) Write the difference between image restoration and image enhancement.

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Image subtraction is often used in industrial applications for detecting missing component in a product assembly. The approach is to store a "golden" image corresponds to correct assembly; this image is then subtracted from incoming images of the same product. Ideally the difference would be zero if the new products are assembled correctly. Difference images for products with missing components would be non zero in the area where they differ from the "golden" image. What condition do you think have to be met in practice for this method to work ?

(b) Show how a smoothening filter (mean filter or Gaussian filter) can be used to sharp an image. Write the MATLAB code also.

(c) What is normalization ? Explain with an example.

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) How is dilation different from erosion ?

(b) Explain the following morphological algorithms :

(i) Thinning

(ii) Thickening

(c) Explain about image sampling and quantization.

F. No. : a-13

Roll No. | | | | | | | | **Paper Code: TCS 651**

B. Tech (CSE (Cloud Computing))
Mid Semester Examination 2018
VI *Semester*, DEVOPS ON CLOUD

Time: 1:30 Hours MM: 50

Note:
(i) This question paper contains two sections.
(ii) Both sections are compulsory.

Section – A

Q1. Fill in the blanks/ True-False (1X5 = 5 Marks)

a) Services provided by cloud vendors such as AWS and GCP comes under ___ service model.
b) Is cloud computing distributed or parallel computing?
c) Is Python a compiled language?
d) Does Cloud Foundry comes under PAAS?
e) The IP of localhost server is _____. (There can be two answers, marks will be awarded to both of them. Just name any one).

Q2. Attempt any five questions. (3X5 = 15 Marks)

a) What is the difference between distributed computing and parallel computing? Give examples.
b) What is version control? Name a popular version control service.
c) What is the difference between IAAS and PAAS?
d) Explain a popular PAAS service.
e) What will be output of following code snippet?
   - a = 5
   - print "hello", a
   - c = a/0
   - print '"cloud"
f) Explain two popular IAAS services.

Section – B

Attempt any two parts from each of the following sections.

Q3. (5X2 = 10 Marks)

a) Explain Git version control with a suitable diagram. What is the advantage of using Git version control?
b) Write the commands for creating a repository on Github, downloading it on your local machine, loading it back to Git server after some updates. (Be specific about the commands).
c) Using Python - Define a function overlapping() that takes two lists and returns True if they have at least one member in common, False otherwise. You may use your is_member() function, or the in operator, but for the sake of the exercise, you should (also) write it using two nested forloops.

Q4. (5X2 = 10 Marks)

a) What is Cloud Foundry service? Explain the steps for creating a website and deploying on cloud foundry platform.

b) What is virtualization in cloud computing? Explain any two popular virtualization tools available in the market.

c) In Python - Write a function translate() that will translate a text into "rövarspråket" (Swedish for "robber's language"). That is, double every consonant and place an occurrence of "o" in between. For example, translate("this is fun") should return the string "tothohisos isos fofunon".

Q5. (5X2=10 Marks)

a) What is the role of hypervisor in virtualization? How do AWS, GCP and AZURE use virtualization for providing their services to the people?

b) What are the pros and cons when creating cloud services such as IAAS and PAAS? Write atleast 3 points for each.

c) Write BASH shell commands for executing following statements:

- Make a directory test3
- Create 3 empty files called test3a, test3b, test3c
- Copy file test3a to test3
- Rename test3a to temp2

Roll No. .....

TCS–672

B. TECH. (CSE) (SIXTH SEMESTER)
MID SEMESTER EXAMINATION, 2018

MACHINE LEARNING—2

Time : 1 : 30 Hours

Maximum Marks : 50

Note : (i) This question paper contains two Sections.

(ii) Both sections are compulsory.

Section—A

1. Fill in the blanks/True-False : (1×5=5 Marks)

   (a) In case of SVMs if the number of features is much greater than the number of samples, the method is like to give ..... (superior/moderate/poor) performances.

   (b) "Mapping to a Higher Dimensional Space can be highly compute-intensive."

   (True/False)

   (c) The maximum number of Principal Components allowed by sklearn if you have a dataset with 100 training points and 4 features for each point is ..... (4/25/100/400).

(d) Once you have established it is a problem requiring a non-linear model and in absence of expert knowledge the ..... (Sigmoid/Gaussain/RBF) kernel makes a good default kernel.

(e) "For very tiny values of C, you should get misclassified examples, often even if your training data is linearly separable."

(True/False)

2. Attempt any *five* parts : (3×5=15 Marks)

(Define/Short Numerical/Short Programming/Draw)

(a) What makes facial recognition in pictures good for PCA ?

(b) Why does the kernel trick allow us to solve SVMs with high dimensional feature spaces, without significantly increasing the running time ?

(c) Mention a reasonable way to select the number of principal components k (Recall that n is the dimensionality of the input data and m is the number of input examples).

(d) What do you understand by Delayed Reward in MDP ?

(e) Suppose you are using RBF kernel in SVM with high Gamma value. What does this signify ?

(f) Consider applying a soft margin SVM to the 1-dimensional data shown below. What will be the support vectors for $c = 0$ and $c = \infty$ respectively ?

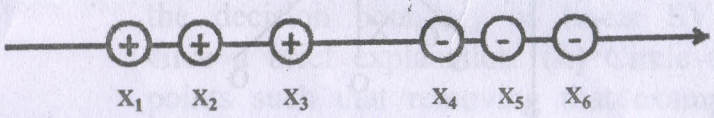


Fig. 1

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Mention briefly the steps involved in PCA staring with the data matrix X that is n*p where n is the number of data points and p is the number of dimensions. Include steps to show the reduction in dimensions for p to k where k is the reduced dimension for the data point. {k < p}.

(b) In the following diagram with two classes (crosses and circles) with exactly one outlier and given that you want to ignore the outlier SVM which separator line

between A, B and C will you pick ? Explain your choice.

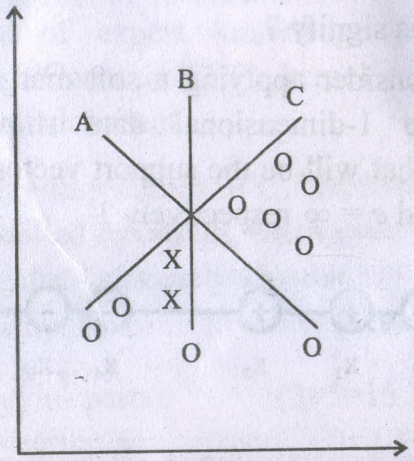


Fig. 2

(c) In support vector machines (SVM) how can we adjust the parameter C ? Why is this parameter used ?

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What do you understand by Features Transformation ?

(b) Four different applications are mentioned. Discuss where you will use PCA and where you will nor use PCA. Give one-two line explanations :

(i) Compressing data to take less memory/space

(ii) Reducing dimensions to make the supervised algorithm runs faster

(iii) To get more features to feed into a learning algorithm

(iv) As a replacement for linear regression.

(c) Suppose we are using a linear SVM (i. e., no kernel), with some large C value, and are given the following data set. (i) Draw the decision boundary of linear SVM. Give a brief explanation. (ii) Circle the points such that removing that example from the training set and retraining SVM, we would get a different decision boundary than training on the full sample. You do not need to provide a formal proof, but give a one or two sentence explanation.

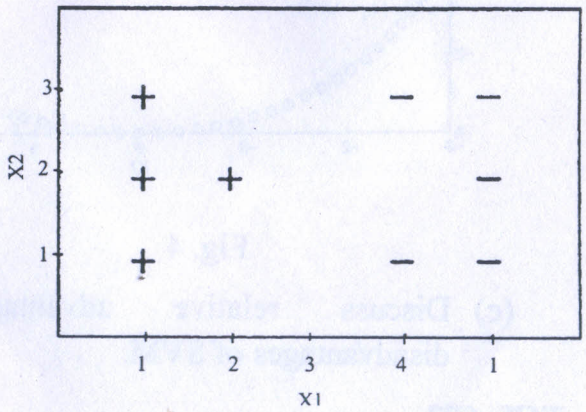


Fig. 3

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

   (a) Differentiate between PCA and ICA.

   (b) You are given the following plot, which illustrates a dataset with two classes. Draw the decision boundary when you train an SVM classifier with linear, polynomial (order 2) and RBF kernels respectively. Classes have equal number of instances.

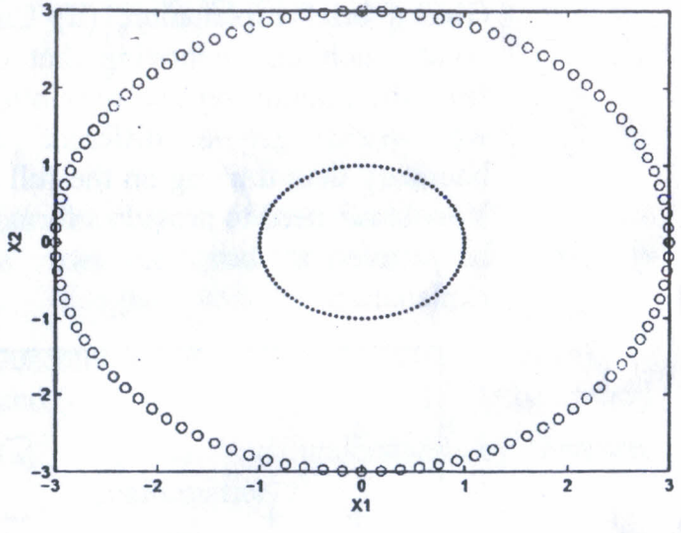


Fig. 4

   (c) Discuss relative advantages and disadvantages of SVM.

F. No. : a-5

Roll No. .....

TIT–607

B. TECH. (IT) (SIXTH SEMESTER)
MID SEMESTER EXAMINATION, 2018
SOFTWARE VERIFICATION, VALIDATION AND TESTING

Time : 1 : 30 Hours

Maximum Marks : 50

Note : (i) This question paper contains two Sections.

(ii) Both Sections are compulsory.

Section—A

1. Fill in the blanks/ True-False : (1×5=5 Marks)
   (a) Customer satisfaction and risk management are ..... goals of software testing.
   (b) Testing is a single-phase in SDLC. (True/False)
   (c) The domain of possible inputs to the software is too ..... to test.
   (d) ..... means inability of a system or component to perform a required function according to its specification.
   (e) ..... is also known as functional testing.

2. Attempt any *five* parts : (3×5=15 Marks)
   (a) Differentiate between error, bug, fault and failure.
   (b) "Testing is the process of executing a program with the intent of finding errors." Comment on the statement.
   (c) What are the factors for determining the limit of testing ?
   (d) What is the need for validation ?
   (e) "V & V diagram is basis for every type of testing." Comment on this statement.
   (f) What are the types of errors detected by white box testing ?

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)
   (a) What are the evolutionary steps in software testing ? Discuss in detail.
   (b) What are the short-term, long-term and post-implementation goals of software testing ?
   (c) Differentiate between (any *two*) :
      (i) Effective and Exhaustive testing
      (ii) Verification and Validation
      (iii) Static and Dynamic testing

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)
   (a) Explain the different stages of Software Testing Life Cycle (STLC).
   (b) Discuss Verification activities in SDLC.
   (c) Which type of testing is possible with Boundary Value Analysis (BVA) ? Give an example.

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)
   (a) Discuss Decision Table-based testing.
   (b) What is Path Testing ? Discuss the guidelines and applications for Basic path testing.
   (c) What is Mutation Testing ? How is it carried out ?

Roll No. .....

TIT–605

B. TECH. (CS/IT) (SIXTH SEMESTER)
MID SEMESTER EXAMINATION, 2018

JAVA PROGRAMMING

Time : 1 : 30 Hours

Maximum Marks : 50

Note : (i) This question paper contains two Sections.

(ii) Both Sections are compulsory.

Section—A

1. Fill in the blanks/True-False : (1×5=5 Marks)

   (a) Super class of all the classes is ..... class.

   (b) Multiple inheritance is possible using ..... .

   (c) Static members will get memory at ..... .

   (d) Default value of Boolean type variable is ..... .

   (e) Scanner sc;
   sc is ..... .

2. Attempt any *five* parts : (3×15=15 Marks)

   (a) Why we use constructor ? Write difference between method and constructor.

   (b) WAP to find gcd and lcm of two inputted numbers from user.

   (c) What are usages of final keyword ?

   (d) What are different ways to compare two strings ?

   (e) WAP to show the usage for-each loop.

   (f) WAP to show the usage of super keyword.

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

   (a) WAP to count how many objects are created of a class.

   (b) What is difference between String and String Buffer class.

   (c) WAP to take input from user and print the variable length array :

   1 2 3 4

   4 5 6 7 8 9

   4 5 6 8

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

   (a) List out any *six* features of java language.

   (b) Write a java program for the following : Define a class called "MyRectangle" with instance variables called "length" and "width" and methods setData( ) and rectArea( ). SetData( ) method inputs two argument values from user for setting length and width of the rectangle. rectArea( ) calculates area of rectangle and returns it.

   (c) What do understand by the term overloading and overridding ? Demonstrate by an example.

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

   (a) With reverence to data type, what is widening and narrowing ? Give example.

   (b) Write a java program to covert temperature in Celsius to temperature in Fahrenheit and vice versa. Use inheritance to define a base class containing abstract

method named convert(). Define two derived classes to override the convert() method. One derived class will convert Fahrenheit to Celsius and other will perform vice versa.

(c) What is inheritance ? Explain the types of inheritance with block diagram.