

B.Sc.IT: SEMESTER – VI PRACTICAL QUESTION PAPER [CBSGS – 75:25 Pattern]

PROJECT Management

Seat	No: Max N	Marks:
1.	Draw a class diagram for the scenario given below.	40
	This is an example that models University Courses. Assume three classes' such as course, lecturer, student and an interface person. Each course objects maintains a list of student on that course and lecturer who has been assigned to teach that course. The course object has behavior that allows adding and removing student to and from course, assigning the teacher and getting a list of currently assigned student and currently assigned teacher. A teacher may teach several courses but a course only has a single teacher .A lecturer object maintains a list of courses that it teaches, course is attended by 0 or more student and student may attend multiple courses. A person interface will have getName() and getEmailAddress () methods both lecturer and student are shown to be the type of person.	
2.	Viva	5
3.	Journal	5

Seat No:_____

1.	Draw a class diagram for the scenario given below.	40
	This scenario is from system that models companies for a payroll or reporting system. Company object has properties such as name and employees_list and getName and getEmployees as its behavior. Employee object includes employee no, name, salary and manager as its properties getName (), getEmplyoeeNo (), getSalary() and getManager() as its methods. getManager() accepts object of manager. Company may have one or more employees. A manager object keeps manages as list property and add TeamMember(employee_list) and getTeamMember() as its behaviors. One or more employee can be managed by manager objects. Some employees are contractual employees who are within a lieu of a contractor object. A contractor object may have length_ of _contract as its property and getLength() as its behavior.	
2.	Viva	5
3.	Journal	5

Seat No: Max	Marks:
 Create a class diagram(Use Star UML) for "library management" using the classes with their attributes and operation given below. Also set the appropriate relationship between the classes using the relationship tools from the toolbox following the overview of the system given below. <u>Overview of the system:-</u> a) It has a class "Book". Book has authors so it has an "Author" class. b) In order to collect book information it has "BookItem" class which uses some of the properties from book class. c) It needs an account for reserving book by the user so it has an "Account class." d) In account class there is an attribute named state which uses an enumeration named "AccountState". e) It also has a class to manage the user detail that has an account in the library and he can borrow and return books to library. g) The system also has an interface "Search" where the user searches the book he needed from the "Catalog" class. 	
2. Viva	5
3. Journal	5

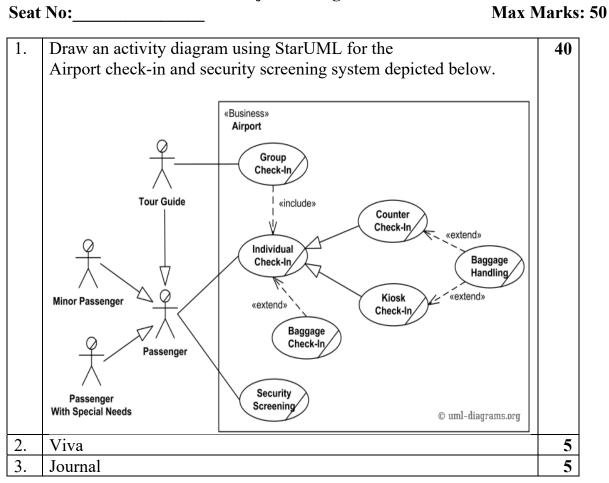
at No: M	ax Mar
DERIVE AN ACTIVITY DIAGRAM FROM THE NARRATIV TEXT ON "BANK ATM MACHINE FOR WITHDRAWIN CASH".	-
Summary:	
An automated teller machine (ATM) or the automatic banking machi (ABM) is a banking subsystem that provides bank customers with acce to financial transactions in a public space without the need for a cashi clerk or bank teller.	ess
Customer uses bankATM to check balances of his/her bank accound deposit funds, withdraw cash and/or transfer funds which are generalization alternative of ATM transaction use case.FOR WITHDRAWING CASH	unts the
On most bank ATMs, the customer is authenticated by inserting a plas ATM card and entering a personal identification number (PIN). Bank we than authenticate the customer's pin number. Only authenticate customer can request the system for withdrawing money while to unauthenticated customer will get back his ATM card as the system we reject the card.	vill ted the
Then the system will request the authenticated customer to enter to amount be de withdrawn. The bank will check the balance amount of to customer if it is sufficient bank will provide the requested amount to to customer and debit the respective amount from the balance. The custom will collect or take the amount from the slot. In case of insufficient amount the system will show the balance and reject the card. At the end of all the process the customer will take back his ATM card.	ihe ihe ner ent
Viva	5
Journal	

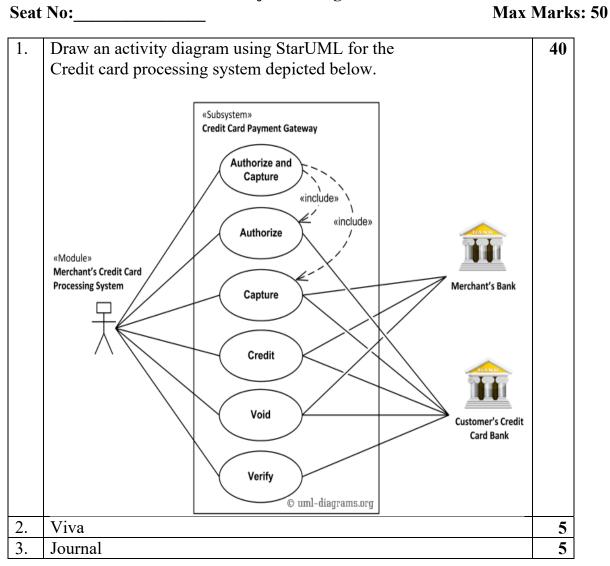
eat	No: Max M	Mark
1.	DERIVE AN ACTIVITY DIAGRAM FROM THE NARRATIVE TEXT ON "ONLINE PAPER SUBMISSION SYSTEM".	40
	SUMMARY The author completes an online form that requests the user to input author name, Correspondence address, email and, title of paper. The system validates this data and, if correct, asks the author to submit the paper. The author then browses to find the correct paper on their system and submits it. Once received and stored, the system returns to the author a reference number for the paper. Authors may submit as many papers as they like to be considered for acceptance to the conference up until the deadline date for submissions. Papers are allocated to referees for assessment. They review each paper and submit to the system their decision. Once the program organizer has agreed the decisions authors are informed by email. Accepted papers are then schedule to be delivered at a conference. This involves allocating a date, time and place for the presentation of the paper.	
•	Viva	5
3.	Journal	5

Project Management	
Seat No: Max	x Marks
1. DRAW THE ACTIVITY DIAGRAM FOR THE GIVEN PROBLEM OF	40
USE CASE.	
DESCRIPTION OF THE EXAMINATION PAPER PREPARATION	
SUPPORT SYSTEM.	
Use case name: submit question	
Participant: lecturer	
Entry conditions:	
1. The question is ready and stored in a file	
2. The lecturer is assigned to the module	
Exit conditions:	
1. The file is uploaded to the system	
2. The module leader is notified of the availability of the question	
3. The event is logged by the system	
Flow of Events:	
1. The lecturer logs into the system by entering his/her username and	
password;	
2. The system checks the username and password;	
3. The system displays the list of modules of which he/she is the lecturer,	
module leader	
And/or internal examiner;	
4. The lecturer selects a module and his/her role in the module as a lecturer;	
5. The system prompts the user to enter the file name and location on his/her	
computer, and Additional information if any;	
Exceptional conditions and alternative flow of events:	
When the username and password is not correct:	
3.1: display error message, go back to step 1;	
When the lecturer is not listed on the module:	
4.1: quit the system;	
Special requirements:	
1. The file should be encrypted when transmitted from lecturer's computer to	
the server	
2. The notification of success in uploading the file should be within 20	
seconds	
3. The event should be recorded in a log file to contain the following	
information:	
a) Name of the lecturer,	
b) Date and time of the event,	
c) The name of the event (upload exam question).	
d) The file on the server that stores the questions.	
2. Viva	5
3. Journal	5

	Project Management		
Seat	No:	Max Mar	ks: 5
1.	DRAW WORK BREAK DOWN STRUCTURE FOR THE TASK OUTLINE GIVEN BELOW USING WBS CHART PRO TOOL. TASK OUTLINE FOR A SOFTWARE DEVELOPMENT PROJEC FOLLOWING WATERFALL MODEL: -	40 T)
	Project		
	1.1 requirements		
	1.1.1 Product investigation		
	1.1.2 Product survey		
	1.1.3 Assess product suitability		
	1.2. Design		
	1.2.1 Concept design		
	1.2.2 Final design		
	1.2.2.1 Detailed design		
	1.2.2.2 Drawing		
	1.2.2.3 Design review and approval		
	1.3 constructions		
	1.3.1 Purchase material		
	1.3.2 Building system		
	1.3.2.1 Mark out dimensions		
	1.3.2.2 Install foundation		
	1.3.2.3 Install superstructure		
	1.4 testing		
	1.4.1 Test functionality		
	1.4.1.1 Routine testing		
	1.4.1.2 Random investigation		_
$\frac{2}{2}$	Viva		
3.	Journal		5

	r toject Management	
eat I	No: Max N	Aarks
	Draw a use-case diagram using StarUML for the scenario given below.	40
	Web Customer actor uses some web site to make purchases online. Top level use cases are View Items, Make Purchase and Client Register. View Items use case could be used by customer as top level use case if customer only wants to find and see some products. This use case could also be used as a part of Make Purchase use case. Client Register use case allows customer to register on the web site, for example to get some coupons or be invited to private sales. Note that Checkout use case is included use case not available by itself - checkout is part of making purchase. Except for the Web Customer actor there are several other actors which will be described below with detailed use cases - Customer may search for items, browse catalog, view items recommended for him/her, add items to shopping cart or wish list. All these use cases are extending use cases because they provide some optional functions allowing customer to find item. Customer Authentication use case is included in View Recommended Items and Add to Wish List because both require customer to be authenticated. At the same time, item could be added to the shopping cart without user authentication. Checkout use case includes several required uses cases. Web customer should be authenticated. It could be done through user login page, user authentication cookie ("Remember me") or Single Sign-On (SSO). Web site authentication service is used in all these use cases, while SSO also requires participation of external identity provider. Checkout use case also includes Payment use case which could be done either by using credit card and external credit payment service or with PayPal.	
	Viva	5
).	Journal	5





Seat No: Max M		
 Draw a use-case diagram using StarUML for the retail Point-of-sale system depicted below. A retail POS system typically includes a computer, monitor, keyboard, barcode scanners, weight scale, receipt printer, credit card processing system, etc. and POS terminal software. Checkout use case involves Customer, Clerk and Credit Payment Service actors and includes scanning items, calculating total and taxes, payment use cases. Checkout use case requires Customer actor, hence the 1 multiplicity of Customer. Clerk can only participate in a single Checkout use case. Credit Payment Service can participate with many Checkout use cases at the same time. Checkout use case may not need Credit Payment Service (for example, if payment is in cash), thus the 01 multiplicity. Checkout use case is an example of a large and complex use case split into several use cases to be complete. Payment use case is represented using generalization relationship. It means that only one specific type of payment is accepted - either by cash, or by credit, debit, or with check. An alternative to such representation could be to use include relationship so that not just single but several forms of payment could be accepted from the same client during checkout. 	40	
2. Viva	5	
3. Journal	5	

Seat No:

•	Draw a class diagram using StarUML for the scenario given below.	40
	This scenario shows an <i>inheritance hierarchy</i> of a series of classes and their subclasses. It's for an imaginary application that must model different kinds of vehicles such as bicycles, motor bike and cars. All Vehicles have some common attributes (speed and color) and common behavior (turnLeft, turnRight). Bicycle and MotorVehicle are both kinds of Vehicle and are therefore shown to inherit from Vehicle. To put another way, Vehicle is the superclass of both Bicycle and MotorVehicle. In our model MotorVehicles have engines and license plates. Attributes have been added accordingly, along with some behavior that allows us to examine those attributes. MotorVehicles is the base class of both MotorBike and Car; therefore these classes not only inherit the speed and color properties from Vehicle, but also the additional attributes and behavior from MotorVehicle. Both MotorBike and Car have additional attributes and behavior which are specific to those kinds of object.	
	Viva	5
	Journal	5

Seat	Max Max	Marks
1.	Explain the process of cost estimation using Basic COCOMO model. (Refer phase distribution of effort and schedule tables for the necessary values)	20
2.	Explain the process of cost estimation using intermediate COCOMO model. (Refer Project Characteristics, phase distribution of effort and schedule tables for the necessary values)	20
3.	Viva	5
4.	Journal	5

UNIVERSITY OF MUMBAI T.Y.B.Sc. INFORMATION TECHNOLOGY (Semester VI) (Practical) EXAMINATION April 2016 Project Management

Max Marks: 50

1.	for app applicat: function that the	inction point analysis te lication software "FP ion has following numb s mentioned in the table application involves 2 a g \$150.00 per day inclu	Tacker" per of da given b average	develope ta function ellow. With programme	d in ja s and tra n TDI of	va. The insaction 35. Note	40
			TABLE	3 :-			
		Function type		Complexity	у		
			low	Average	high		
		External inputs(EI)	3	4	6		
		External queries(EQ)	3	4	6		
		External outputs(EO)	4	5	7		
		Internal logical file(ILF)	7	10	15		
		External Interface file(EIF)	5	7	10		
2.	Viva						5
3.	Journal						5

	i roject Management	
Seat	No: Max M	Marks: 5
1.	Estimate effort and schedule, productivity and full time personnel required for an MIS project having three programs with DSI of 1028, using basic COCOMO1 model in organic mode and intermediate COCOMO model in organic mode (rate all the cost drivers as law). Also calculate the programming effort for the same application.	40
2.	An initial study of application software has determined that the size of the program will be roughly 62,000 delivered source instruction for an "ABC" inventory. Using intermediate COCOMO1 model equations to calculate the effort, duration and staffing required to developing this application software.	
	Note that:-	
	This project is rated Very High for Complexity (Effort Multiplier of 1.30), and Low for Tools Use (Effort Multiplier of 1.10), and all of the other cost drivers are rated to be Nominal. Use these two Effort Multipliers to calculate the Effort Adjustment Factor (EAF).	
3.	Viva	5
4.	Journal	5

Seat No:_____

1.	for applica programm transaction of 35. No	ction point analys ation software "or ers, which has the n functions mention te that in this pro- r month including	line sho follow oned in oject an	opping" dev ving number the table giv a average p	veloped in o of data fun ven bellow.	e# by three actions and With TDI	40
		Function Type		Complexi	ty		
			Low	Average	High		
		Inputs (EI)	2	4	6		
		Outputs (EO)	3	5	7		
		Files(ILF)	5	10	15		
		Inquiries(EQ)	2	4	6		
		Interfaces(EIF)	4	7	10		
2.	Viva		•	•	•		5
3.	Journal						5

-	
1.	DRAW A CLASS DIAGRAM FOR THE SCENARIO GIVEN
	BELOW:
	This is an example that models "ORDER MANAGEMENT". The
	Customer object has properties such as CustomerId,
	CustomerName, Address and Phone and methods such as
	AddCustomer(),DeleteCustomer() and EditCustomer(). Order
	object includes OrderId, CustomerId, CustomerName, ProductId,
	Amount and OrderDate as its property and CreateOrder() and
	EditOrder(OrderId) as its behavior. A customer can place one or
	many orders. Further there are SpecialOrder object and
	NormalOrder object which have same methods CreateOrder(),
	confirm(), close(), dispatch() whereas the SpecialOrder object also
	has one property named SpecialDiscount. SpecialOrder and
	NormalOrder objects are both kinds of order and are therefore
	shown to inherit from order entity. Moreover the system also has
	Product entity having attributes such as ProductId, ProductPrice,
	<pre>ProductType and methods such as AddProduct(), ModifyProduct()</pre>
	and SelectProduct(ProductId). Stock object has properties like
	ProductId, Quality and ShopNo and behavior such as addStock(),
	ModifyStock(ProductId) and slectStockItem(ProductId). Note that
	specialOrder and NormalOrder has 1 or more product whereas stock
	has many products.
2.	Viva
3.	Journal

Seat No:_____

Max Marks: 50

40

Seat No:_____

1.	DRAW A CLASS DIAGRAM FOR THE SCENARIO GIVEN BELOW:	40
	This is an example that models "Hospital Management". The ward object of this system has attributes such as name, patient-gender and capacity. Note that patient-gender is a gender type which is an enumeration containing enums male and female. The system also has Patient entity with attributes such as patient_id, admitted, sickness _history, prescriptions, special_reqs and allergies and gender which is again a gender enumeration type. And operations such as getPatient() and deletePatient(Patient_id).Ward is a division of a hospital object having attributes such as name address and phone number. In hospital there are number of wards each of which may be empty or have one or more patient. Each ward has unique name. This ward is shared by patients who need a similar kind of care. Each patient is on a single ward. The system also has Doctor entity which is further classified into Consultant Doctor and Junior Doctor . The doctors in the hospital are organized into Teams entity	
	with attribute team_name. Each team can have two or more doctors. Each patient is under the care of a single team of doctors. A patient may be treated by any number of doctors but all the doctors must	
	belong to same team that cares for the patient. Note that team is own by the hospital.	
2.	Viva	5
3.	Journal	5

eat No: Ma	x Marks: 5
DRAW A USE-CASE DIAGRAM USING STARUML FOR TH	E 40
"Hospital Reception Subsystem" explained below:	
"Hospital Reception Subsystem" supports some of the many jo	
duties of hospital receptionist. Receptionist schedule patient	
appointments with the doctor and also schedule patient hospita	
admission. If doctor is available and admission to the hospital	
possible then receptionist can extend the service to patien	nt
registration by collecting the patient information on patient arriva	al
or over the phone. Patient registration is an integral part of patient	nt
Hospital Administration use case. Hospital administration use case	se
is further generalized into outpatient hospital admission an	d
inpatient hospital administration. Note that for the patient that wi stay in the hospital, he or she should have a bed allotted in a ward	
Receptionists might also receive patient's payments, record the	
in a database and provide receipts, file insurance claims an	
medical reports.	
2. Viva	5
3. Journal	5

Seat	t No: Max M	Marks: 5
1.	DRAW A USE-CASE DIAGRAM USING STARUML FOR	40
	THE "MUSIC PORTAL SYSTEM" DEPICTED BELOW.	
	The following narration describes some of the use cases for "Music	
	Portal System". This system has web user as its main actor. The	
	web user can perform first level uses cases namely SearchAlbum,	
	login, logout and ViewAccount. Registration use case extends	
	login i.e. if the user doesn't have a login and wishes to create a new	
	one, he or she can register to get a login. Moreover the	
	ViewAlbumDetail use case is extending the SearchAlbum use case.	
	Further the ViewAlbumDetail use case is extended by two more	
	services viz. DownloadAlbum and BuyAlbum. Note that to	
	download or to buy an album the user must be a registered member.	
	Moreover the buyalbum and ViewAccount is further extended with	
	Recharge use case.	
2.	Viva	5
3.	Journal	5

Seat No:_____

1.	DERIVE AN ACTIVITY DIAGRAM FROM THE CASE	40
	GIVEN BELOW ON "ORDER PROCESSING SUBSYSTEM"	
	Web Customer uses some web site to make purchases online. Where customer can search item, View item, add item to	
	the cart, place order and make payment. For placing an order the	
	customer first searches the required items from the system. As and	
	when the customer finds the item available in the system he starts	
	adding item to the chart. The System provides facility to the	
	Customer to add any number of items to the chart. Customer can	
	also view his shopping chart containing items. Ones the customer	
	finishes his shopping he can place the order by requesting system to	
	confirm the order. The system will then check whether the order is	
	normal order or any special order and according to that the system	
	will generate the bill and request for payment.	
	After getting the bill the customer can make payment. The bank will	
	validate the credit card number. If the credit card number is valid the	
	system will confirm the order. Otherwise the process will get	
	terminated.	
2.	Viva	5
8.	Journal	5

eat No:	Max Marl
1. DERIVE AN ACTIVITY DIAGRAM FROM THE NARRATIVE TEXT ON "TICKET VENDING MACHIN	40 E "
The scenario provided below describes the behavior of the pure ticket use case. Activity is started by Commuter <u>actor</u> who needs to buy a the Ticket vending machine will request trip information Commuter. The commuter will provide trip information to machine. Based on the provided trip information, the ticket ver machine will process the trip information and calculate pay due by requesting payment . Commuter will provide payminformation to the machine. The machine will process payment on the basis of payment by cash or credit or debit calculate payment by card was selected by Commuter, another actor, if will participate in the activity by authorizing the payment. An commuter will get the ticket.	icket. from to the nding ment ment s the ard. If Bank After
Cash payment might result in some change due , so the chan dispensed to the Commuter in this case by the machine. T vending machine will show some "Thank You" screen at the er all the activity.	Ticket
2. Viva	5
3. Journal	5