ATKT Examination October 2019-20

DBJ College Chiplun

Time : 3 Hrs. SYBSc Physics Paper –III SEM –IV Marks : 100

N.B. i) All questions are Compulsory. Ii) Figures to the right indicate full Marks.

iii) Simple calculator is allowed.

Q.1	a)	All questions are compulsory 1) The ---------- is the low velocity seismic Zone. i) Core ii) lower crust iii) asthenosphere iv) None of these. 2) ---------- are formed in regions that are closely to the sea. i) Lakes ii) playa iii) Deltas iv) None of these. 3) The 8085 microprocessor is---------- pin IC. i) 08 ii) 14 iii) 16 iv) 40. 4) LDAX B is ---------- byte instruction. i) 1 ii) 2 iii) 3 iv) None of the above 5) The SI unit of absorbed dose of radiation is ----------. i) Sievert ii) gray iii) erg iv) none of these. 6) For ideal Amplitude modulation m is ----------. i) <1 ii) >1 iii) 0 iv) one.	12
	b)	All questions are compulsory. i) What is phase shift keying? ii) What is conditional branch instruction ? iii) What is Magma?	03
	c)	Fill in the blanks. i) The continental crust is ----------relative oceanic crust. ii) The stack pointer is-------- bit Register. Iii) The CMA instruction is used for----------. iv) Dosimeter measures the ----------. v) One gray is equal to---------- rad.	05
Q.2	a)	i) Explain the various methods to calculate age of the Earth. OR ii) Explain mineral magnetism in detal.	08
	b)	i) Discuss the impact of industries, Traffic and Thermal power plants on Mumbai Ecosystem. OR ii) Explain the role of Climate in source to sink dynamics.	07
	c)	i) Write note on Landslide. OR ii) Write note on Big bang Theory.	05
Q.3	a)	i) Explain the different addressing modes. OR ii) What is Logic group of instruction? Explain any three instructions.	08
	b)	i) What is Branch group of instruction? Explain any three instructions. OR ii) Draw the pin out diagram of 8085 microprocessor.	07
	c)	i) Explain four Control signals. OR	05

		ii) Write the program to add Two 8 bit numbers. Take any suitable memory locations to store numbers and output.	
Q.4	a)	i) Discuss the different methods of Radiation protection. OR ii) Explain amplitude modulation concept in detail.	08
	b)	i) Explain frequency modulation, modulation index and percentage modulation. OR ii) Explain Thermo luminescent Dosimeter.	07
	c)	i) Write note on Organic Scintillators. OR ii) An audio tone amplitude modulates a carrier wave of peak value of 10 volts. The % modulation is 40%. Calculate the peak value of the upper & lower side frequencies.	05
Q.5		Attempt any FIVE questions i) Explain Seafloor spreading. ii) Write note on Medical Geology. iii) Write note on Machine language . iv) Define i) Instruction ii) Opcode iii) Operand.. v) Explain electromagnetic spectrum. vi) Write note on Need of Modulation. vii) Explain natural sources of Radiation.	

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Timing: (2 ½ Hours) [Total Marks:75]

N.B. 1) **All** questions are **compulsory**.
2) **Figures** to the **right** indicate marks
3) **Draw** suitable **diagrams** and illustrations **wherever necessary**.
4) **Mixing** of sub-questions is **not allowed.**

Q. 1 Attempt All the Questions

A) Choose the correct alternative **(5M)**

i) Ω-notation provides an asymptotic _____ bound.
a) upper b) both upper and lower
c) lower d) none of these

ii) Which of the following statement is true.
i. Quicksort, like merge sort, is based on the divide-and-conquer paradigm.
ii. ω-notation to denote a lower bound that is asymptotically tight.
a) i-true, ii-false b) i-true, ii-true
c) i-false, ii-true d) i-false, ii-true

iii) An acyclic graph contains _____ cycles.
a) no b) many
c) one d) none of these

iv) BST is the abbreviation for _____
a) Binary Search Tree b) Binary Search Time
c) Binary Solution Technique d) None of these

v) A path that starts and ends on the same vertex is called _____
a) cycle b) tree
c) spanning tree d) none of these

B) Fill in the blanks: **(5M)**

{ lower, halts, upper, moves, recurrence, efficient, $\Omega(n2)$, $\Theta(n2)$ }

i) O-notation describes a _____ bound.
ii) An algorithm is said to be correct if, for every input instance, it _____ with the correct output.
iii) An algorithm that is asymptotically more _____ will be the best choice for all but very small inputs.
iv) A _____ is an equation or inequality that describes a function in terms of its value on smaller inputs.
v) The worst-case running time of insertion sort is _____.

P.T.O.

C) Explain the following terms in one or two lines (5M)

i) Rate of growth
ii) Running time of Algorithm
iii) Linear search
iv) Binary tree
v) Selection algorithms

Q.2 Attempt the following: (Any THREE) (15M)

A) Define Algorithm. Explain why analysis of algorithm important?
B) Briefly describe the Master method for solving recurrences of the form

$$T(n) = aT(n/b) + f(n)$$

C) How do we compare two algorithms? Explain.
D) Write the algorithm for printing lines of a file in reverse order.
E) Write a note on commonly used logarithms and summations in algorithmic analysis.
F) Explain how to compare algorithms. Give example.

Q.3 Attempt the following: (Any THREE) (15M)

A) What are the type of binary tree? Explain any two.
B) Write a note on binary tree traversal.
C) What is an AVL tree? Explain.
D) Explain with suitable example the adjacency list and adjacency matrix representations of a graph. Give example.
E) What is a shortest path problem? Explain any one algorithm for finding shortest path in a graph.
F) Define graph. Differentiate between directed and undirected graph. Give examples.

Q.4 Attempt the following: (Any THREE) (15M)

A) What is greedy technique? What are its advantages and disadvantages?
B) Write a note on computer algorithms that are based on divide-and-conquer programming approach. What are the advantages of divide and conquer based algorithms?
C) Write a note on Master theorem.
D) Explain any two problems that can be solved using dynamic programming.
E) What are the elements of greedy algorithm? Explain.
F) Explain the concept of Classification by Implementation Method.

Q.5 Attempt the following: (Any THREE) (15M)

A) What is Analysis of Algorithm? Why is it important? Explain.
B) List the various properties of binary tree.
C) What is a threaded binary tree? Explain.
D) Write a note on Master theorem. Give example.
E) Write a note on partition based selection algorithms.

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A.B.J. College, Chiplun.
ATKT Exam. Oct 2019
SYBSc - Advanced JAVA

16

Time: 2 hrs. 30 min. Sem - IV Max. Marks: 75

Notes
1) All questions are compulsory.
2) Figures to right indicate full marks.
3) Assume necessary data as required.

Que 1 **A) State following statements true or false.** 5

1) All Swing components begins with "J".
2) In JSP four implicit objects are used.
3) Swing components are heavy weight components.
4) Servlet is dynamic server side programming.
5) Java Beans only available in Jar file.

B) Choose correct options: 5

1) Which of the following is used to call stored procedure?
   A) Statement B) PreparedStatement
   C) CallableStatment D) CalledStatement
2) "request" is instance of which one of the following classes?
   A) Request B) HttpRequest
   C) HttpServletRequest D) ServletRequest
3) Which is not a directive?
   A) include B) page C) import D) taglib
4) Which method can set or change the text in a Label?
   A) setLabel( ) B) getText( ) C)setText() D) All the above
5) How many JDBC drivers define by Sun?
   A)one B)two C)four D)three

C) Write answer of following: 5

1) Enlist Swing components
2) How declare variable in JSP?
3) What is MVC?
4) What is JSON?
5) Write a java code to get Result Set Meta Data object.

Que. 2 **Attempt the following: (any Three)** 15

A Explain JDBC Architecture.

B What is a Combo Box? Explain various constructors and methods of JCombo Box class.

C Explain Text Entry components.

D What Result Set? Explain its methods.

E Write a JDBC to accept a dept_id from user and display all records in it. Table employee(empid,ename,dept_id, address,salary)

F Write a program to create a login form for entering username and password. On click "ok" button check the user name and password is correct or not display proper message on screen.

P.T.O.

Que. 3	**Attempt the following: (any Three)**	
A	Write a note on Servlet life cycle.	15
B	State and explain advantages of JSP.	
C	Explain Page Directive inJSP	
D	Explain HttPServlet with syntax and use.	
E	Write a program in Servlet that takes the value of Name and id from Html page and displays the same.	
F	Write a JSP program to accept a number from HTML form .Find and display Factorial value.	
Que. 4	**Attempt the following: (any Three)**	
A	Write a note on Strut2 Interceptors.	15
B	What is JSON schema? Give examples and illustrate.	
C	Explain various Result types available in Struts2.	
D	List and explain valid JSON data types.	
E	Explain getter and setter methods of Java Beans.	
F	Explain the significance and structure of struts.xml file.	
Que. 5	**Attempt the following: (any Three)**	
A	Differentiates between AWT and Swing features.	15
B	Write a note on JSP implicit objects.	
C	Discuss differences between JSON and XML.	
D	Explain JFC features.	
E	Explain session tracking mechanism in Servlets.	

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D.B.J College Chiplun - ATKT Exam - Oct 19

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Subject : Software Engineering

Class. SYBSc (CS) Sem - IV

Time : (2 ½ Hours) [Total Marks: 75]

N.B.

1) All questions are compulsory.
2) Figures to the right indicate marks.
3) Illustrations, in-depth answers and diagrams will be appreciated.
4) Mixing of sub-questions is not allowed.
5) Assume suitable data if necessary and state it clearly.

Q. 1 Attempt All Questions. (Each of 5 marks) **(15M)**

(a) Multiple Choice Questions. **(5M)**

(i) The goal of testing is to design a series of _____ that have a high likelihood of finding errors.

a) Test plan
b) Test cases
c) Events
d) Use cases

(ii) RMMM stands for _____.

a) Risk Mitigation, Monitoring and Management
b) Risk Maintaining, Management, Measure
c) Risk Management, Measure, Mitigation
d) Risk Management, Monitoring, Measure

(iii)_____ is a systematic, scientific and disciplined approach towards the development, functioning and maintenance of the software.

a) Software Process
b) System
c) Software Engineering
d) None of these

(iv)_____ diagrams focus on the relationship between objects.

a) Use case
b) Class
c) Object
d) Collaboration

(v) SDLC stands for _____

a) Software Design Life Cycle
b) System Development Life Cycle
c) Software Development Life Cycle
d) All of these

P.T.O.

(b) **Fill in the blanks.** (5M)

(Cohesion, Glass Box, System Design, Spiral Model, Class)

(i) The _____ model is an evolutionary software process model that couples the iterative nature of prototyping.

(ii) _____ diagrams describe the static structure of a system at a particular time.

(iii) White box testing is also called as _____ testing.

(iv) _____ is a process of designing a plan for an improved system based upon the results of the existing system analysis.

(v) _____ is a measure of internal interdependence within a component.

(c) **Short Answers.** (5M)

(i) Which are the five framework activities?

(ii) Define software process.

(iii) Which are the two parameters used to measure Software?

(iv) What is coupling?

(v) What is unit testing?

Q. 2 Attempt the following (Any THREE) (15M)

(a) Explain Waterfall model with diagram.

(b) Write a note on Spiral Model.

(c) What are characteristics of SRS?

(d) Explain USE CASE diagram with example.

(e) What is Software Process?

(f) Define Unified Process? Explain its phases.

Q. 3 Attempt the following (Any THREE) (15M)

(a) What is Coupling and Cohesion? Explain it.

(b) Which are the different verification activities for design?

(c) Write down the steps to calculate the Cyclomatic complexity of a program.

(d) Explain metrics of software quality?

(e) Write a note on COCOMO.

(f) Describe Resource Estimation.

Q. 4 Attempt the following (Any THREE) (15M)

(a) Explain the different types of risks.

(b) Write a note on RMMM plane in detail.

(c) State the difference between quality control and quality assurance.

(d) Describe SIX Sigma.

(e) State the difference between Verification and Validation

(f) Explain Bug life cycle.

Q. 5 Attempt the following (Any THREE) (15M)

(a) Which are the components of System Requirement Specification?

(b) Explain Class diagram with example.

(c) Give the difference between PERT and CPM chart.

(d) List the basic principles of Project Scheduling.

(e) Describe Top down testing and Bottom up Testing.

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D.B.J .COLLEGE,CHIPLUN

CLASS:S.Y.B.Sc (C.S) EXAMINATION:OCTOBER-2019 (ATKT)

SUBJECT: Linear Algebra using python Sem-IV

Duration :$2\frac{1}{2}$hrs Maximum marks : 75

N.B 1) All questions are compulsory

2) Figures to right indicates full marks.

3) Use of calculator is not allowed.

Q .1 A) Fill in the blanks 5m

1. The conjugate of complex number 3+4i .....
2. The null space is the set of solution to the ..... system.
3. Google search engine is based on.....
4. Nullity of T is the dimensions of.....of T
5. The sum of two vectors is the .....of the parallelogram.

Q .1 B) Define 5m

a) Eigen Value
b) Vector addition
c) Dot product
d) Linear combination
e) Vector space

Q .1 C) Choose the correct answer 5m

1. The absolute value of 3+4i.....
   a) 4 b) 5 c) 6 d) zero
2. For vector v $\in$ V, the additive inverse is.....
   a) 0 b) 1 c) v-1 d) –v
3. Inverse of matrix is possible only if matrix is.....
   a) singular b) nonsingular c) unitary d) hermitian
4. A vector whose nom is 1 is called.....vector.
   a) Null b) basis c) unit d) none
5. The weight of the word 001101100 is .....
   a) 2 b) 5 c) 1 d) 4

Q .2) Attempt any 3 out of 6 15m

1. Express the vector (2, 6) as linear combination of vectors (1,1) and (2,3).
2. Determine whether the given sets are linearly dependent in R^3 $\{(x^2+1),(3x-1),(-4x+1)\}$
3. Solve the system of linear equation
   $1x_1-3x_2-2x_3=7$ $2x_2+4x_3=4$ $-10x_3=12$
4. Express the following in the form of a+ib, where a and b are real numbers.
   a. $\frac{(3+2i)}{(4-5i)(2+i)}$ b. $\frac{(2+3i)^2}{(1+i)}$
5. a.Solve-let=(2,3,4,6,7) be the vector in R^5.Find 3 a
   b.Find the modulus principal argument of: $1+i\sqrt{5}$
6. a.Draw the vector a-b if a=(5,2) and b=(3,4)

b.Express the polynomial $2x^3-2x^2+12x-6$ as linear combination of x^3-2x^2-5x-3 and $3x^3-x^2-4x-9$

15m

Q .3) Attempt any 3 out of 6

1. let $A=\begin{bmatrix}2 & 2\\ 1 & 1\\ 0 & 6\end{bmatrix}$,$B=\begin{bmatrix}5 & 4\\ 2 & 2\\ 1 & 0\end{bmatrix}$,$C=\begin{bmatrix}2 & 1\\ 3 & 2\end{bmatrix}$,D=[2,4,3,1]
   Compute the following if they exist (a) A+B (b) C+D (c) =B+2D
2. Find the matrix-vector multiplication as linear combination for the following.
   $A=\begin{bmatrix}1 & 2\\ 3 & 4\\ 5 & 6\end{bmatrix}$ and v= [2, 3]
3. What is the inverse of matrix $A=\begin{bmatrix}4 & 0 & 0\\ 0 & 5 & 0\\ 0 & 0 & 6\end{bmatrix}$
4. Find the inverse of $\begin{bmatrix}5 & 7\\ 2 & 3\end{bmatrix}$
5. Write
   (a)Grow algorithm (b) Shrink algorithm
6. Show that vector {(1,2,1),(2,1,0),(1,-12)} of R^3 form a basis for R^3

15m

Q .4) Attempt any 3 out of 6

1. Solve the following system of linear equation
   x+2y+3z+2w=-1
   -x-2y-2z+w=2
   2x+4y+8z+14w=4s
2. Find the null space of matrix $A=\begin{bmatrix}1 & 1 & 2\\ 0 & 2 & 2\\ 1 & 1 & 2\end{bmatrix}$
3. Find the distance between the function $f(x)=x^2$ and $g(x)=x^2-3x+1$.
4. Check whether the given set {(1,2,1),(4,-2,0),(2,4,-10)} is orthogonal .
5. Let {(1,0,1),(1,0,-1),(0,3,4)} be a linearly independent set in R^3. Find an orthonormal set.
6. For 3 dimensional matrix $A=\begin{bmatrix}2-\lambda & 0 & 0\\ 0 & 3-\lambda & 4\\ 0 & 4 & 9-\lambda\end{bmatrix}=0$

15m

Q 5) Attempt any 3 out of 5

1. Find the eigen values and eigen vectors of matrix $A=\begin{bmatrix}-4 & -6\\ 3 & 5\end{bmatrix}$
2. Explain google search engine
3. Check the give vectors are orthogonal complement to each other (1,-2,1) and (3,6,9)
4. Find the distance between the function $f(x)=x^2$ and $g(x)=x^2-3x+1$.
5. Reduce the matrix to echelon form
   $A=\begin{bmatrix}1 & 2 & 3\\ 2 & 5 & 7\\ 3 & 1 & 2\end{bmatrix}$

D B J College, Chiplun
ATKT Exam Oct 2019 – Sem-V
Class SY BSc (CS), Sub-Net Technologies

Duration : 2 ½ HOURS Total Marks: 75

N.B.
1) All questions are compulsory.
2) Figure to right indicate marks.
3) Illustration, in-depth answers and diagram will be appreciated.
4) Mixing of sub question not allowed

Q.1 Attempt All (Each of 5 Marks) 15

a) **Multiple Choice Questions**

i. _____ file apply setting to all ASP.NET application.
a) web.config b) machine.config
c) global.asax d) application object

ii. _____ is the extension of web service in ASP.NET.
a) .ascx b) .asmx
c) .aspx d) .docs

iii. _____ is the last event of web page life cycle.
a) Page_Load b) Page_Load complete
c) Page_Finish d) Page_Unload

iv. By using which of the following attributes, HTML elements are transform to HML server controls?
a) runat="client" b) runat="browser"
c) runat="HTML" d) runat="server"

v. On which of the following web servrs are ASP.NET Websites hosted?
a) Apache Tomcat
b) Internet Information Server(IIS)
c) Glassfish
d) Website Server

b) **Fill in the blanks.**

i. _____ is the basic building block in .NET.
ii. _____ is ability of an application to interact with another application written in different programming language.
iii. _____ web server control is used to create display advertisement file in ASP.NET.
iv. Cookies are ____ state maintenance
v. Using ____ we can create a class definition in multiple files but it will be compiled as one class.

c) **Short answer : (Attempt all)**

i. Which are the two properties in every ASP.NET Validation control?
ii. List the main component of .Net Framework.
iii. What is the use of the property ActiveViewIndex of MultiViewControl?
iv. Define ViewState.
v. What is Boxing in C#?

P.T.O.

Q.2 **Attempt the following (Any three)** 15

a) State the different types of ASP.NET files
b) Write a note on Gobal.asax file.
c) Give syntax of foreach loop in C#. Explain with example.
d) What are the HTML Server controls? What are their features?
e) Write a note on assemblies in .NET.
f) State and explain various component of .NET framework.

Q.3 **Attempt the following (Any three)** 15

a) What is the use of MasterPages in ASP.NET? How a Content page can be added to master page.
b) What is QueryString? How to add and retrieve value from QueryString?
c) Which are different Validation controls in ASP.Net? Explainany two with an example.
d) Explain SiteMapPath control in detail.
e) Write a note on Calender control in ASP.Net.
f) What is Cross-Page Posting? Explain.

Q.4 **Attempt the following (Any three)** 15

a) What are two types caching? Explain any one with example.
b) Explain the concept of Partial Refreshes with respect to AJAX in ASP.Net.
c) What is difference between Single-Value Data Binding and MultiView data Binding in ADO.NET?
d) Write a note on SqlDataAdapter class in ADO.NET.
e) What is LINQ? Explain the syntax of LINQ giving suitable example.
f) Explain the following XML classes.
    i. XmlTextWriter
    ii. XmlTextReader

Q.5 **Attempt the following (Any three)** 15

a) What is CLR? List and explain the features of CLR.
b) What do you mean by Value Type and Reference Type? Give an example for each.
c) Write a note on ASP.Net Page Life Cycle.
d) Write a note on Disconnected Data Access in ASP.Net.
e) What is cookie? How to add and retrieve value from cookies?

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