## SRI PADMAVATI MAHILA VISVAVIDYALAYAM (Women's University)

TIRUPATI – 517 502 (A.P)



## RESEARCH ENTRANCE TEST (RESET)

## **QUESTION PAPERS**

2013

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# **SCHOOL OF SCIENCES**

## SRI PADMAVATHI MAHILA VISVAVIDYALAYAM::TIRUPATI (Women's University) M.Phil./Ph.D. Entrance Test - September, 2012

#### DEPARTMENT OF APPLIED MATHEMATICS

Time: 3 Hrs

Answer any **Five** questions

Question No. 1 is compulsory

All questions carry equal marks  $(5 \times 20=100)$ 

Max.Marks:100

- (a) Define a Homomorphism between two groups. If G and H be two groups with identities e and e' respectively and let φ : G → H is a homomorphism then prove that (i) φ (e) = e' (ii) φ (x<sup>-1</sup>) = (φ(x))<sup>-1</sup> for each x ∈ G
  - (b) Define a metric space and give an example. Show that the union of arbitrary open sets is open
  - (c) Define the continuity of a function in a metric space. Prove that the continuous image of a compact set is compact.
- 2. (a)Show that a finite integral domain is a ring.
  - (b) Define a vector space. Prove that the set of all real valued continuous functions defined in the open interval (0, 1) is a vector space over the field of real numbers, with respect to the operations of addition and scalar multiplication defined as (f + g) (x) = f(x) + g(x)

(a f) (x) = a f(x), a is real with 0 < x < 1

- (a) Let X be a non-empty set. Show that the class of subsets of X consisting of empty set φ and all sets whose complements are countable, is a topology on X
  - (b) Let X be second countable space. If a non empty open set G in X is represented as the union of a class  $\{G_i\}$  of open sets then prove that G can be represented as a countable union of  $G_i$ 's.

4. Use two phase simplex method to minimize z = 6x + 21y

subject to the constraints:  $x + 2y \ge 3$ ,  $x + 4y \ge 4$ ,  $x \ge 0, y \ge 0$ .

5. Solve the following transportation problem by Vogel's Approximation method

		То		Available		
	5	8	3	6	30	
From	4	5	7	4	50	
	6	2	4	6	20	
Demand	30	40	20	10		

6. (a) Define an analytic function. Show that  $f(z) = e^{z}$  is analytic everywhere in the complex plane and find f'(z).

(b) Show that the Mobius transformation w = 1/z is circle preserving

7. (a) State and prove Cauchy residue theorem

(b) Evaluate  $\int_{C} \frac{z^2 + 4}{z - 3} dz$  where C : |z| = 5

8. (a) Use regula-falsi method to compute a real root of the equation  $x^2 - 9x + 1 = 0$  if the root lies between 2 and 4

(b) Use fourth order Runge-Kutta method to solve the equation  $10\frac{d y}{d x} = x^2 + y^2$ ,

y (0) = 1 and find y in the interval  $0 \le x \le 0.4$  taking h = 0.1

## SRI PADMAVATHI MAHILA VISVAVIDYALAYAM::TIRUPATI (Women's University) Ph.D. Entrance Test - September, 2012 DEPARTMENT OF APPLIED MICROBIOLOGY

#### Time: 3 Hrs

Max.Marks:100

Answer any FIVE questionsAll questions carry equal marks5x20=100

- 1. Give an account of oxidation and biosynthesis of fatty acids.
- 2. What are Transposable elements. Describe the mechanism of transposition.
- 3. Describe the growth cycle of bacteria and the factors influencing it.
- 4. Discuss the difference between genomic and cDNA libraries and describe the methods for generation of cDNA libraries.
- 5. Give an account of methods of cultivation of viruses.
- 6. Describe the mode of action of antibacterial agents and add a not on the mechanism of drug resistance.
- 7. Describe recent trends in using microorganisms for environmental cleanup of contaminated and heavy metal polluted sites.
- 8. Give the principle and application of DNA fingerprinting techniques.

## SRI PADMAVATHI MAHILA VISVAVIDYALAYAM::TIRUPATI (Women's University) M.Phil./Ph.D. Entrance Test - September, 2012 DEPARTMENT OF BIOTECHNOLOGY

#### Time: 3 hours

#### Max.marks:100

Answer any Five questionsAll questions carry equal marks(5X20=100)

- 1. Give a brief account of Genome organization in Prokaryotes and Eukaryotes.
- 2. Explain the principle and different methods of sterilization.
- 3. Write an essay on allosteric regulation of enzyme activities.
- 4. Explain the principle and mechanism of antigen and antibody interactions.
- 5. Enumerate the differences between Prokaryotic and Eukaryotic Translational Mechanisms.
- 6. Write an essay on biosynthesis of fatty acids and glycolipids.
- 7. Explain the basic principles, types and applications of electrophoresis.
- 8. Write about the different methods of introduction of rDNA into host cells.

### SRI PADMAVATHI MAHILA VISVAVIDYALAYAM::TIRUPATI (Women's University)

M.Phil./Ph.D. Entrance Test - September, 2012

## DEPARTMENT OF COMPUTER SCIENCE

#### Time: 1 <sup>1</sup>/<sub>2</sub> hr

Max. Marks: 100

Answer ALL questions.

1.	The minterm corresponding to decimal number 13 a) $A + B + \overline{C} + D$ b) $\overline{A} + \overline{B} + C + \overline{D}$	B is c) $A + B + C + D$ d) $\overline{A} + \overline{B} + \overline{C} + \overline{D}$
2.	Two 2's compliment number having sign bits x a result is z. Then, the occurrence of overflow is inc a) xyz b) x'y'z'	and y are added and the sign bit of the licated by the Boolean function c) x'y'z + xyz' d) xy + yz + zx
3.	To get 1-digit BCD adder, we need	
	a) 6 FA, 2HA b) 5 FA, 2HA	c) 3 FA, 1HA d) 4 FA, 0HA
4.	Which of the following is equivalent to $A \oplus B \oplus a$ a) $(\overline{A} + \overline{B} + \overline{C}) (A + B + C)$	C? c) ABC + $\overline{A}$ (B $\oplus$ C) + $\overline{B}$ (A $\oplus$ C)
	b) $\overline{A} \ \overline{B} \ C + \overline{A} \ B \ \overline{C} + A \ \overline{B} \ \overline{C} + ABC$	d) $(A + B + C) (\overline{A} + \overline{B} + C)$
5.	What is the minimum number of NOR gates req OR function without using any other logic gate? a) 3 b) 4	uired to implement a 2 input Exclusive c) 5 d) 6
6.	<ul><li>Introducing parity bit for error detection does not</li><li>a) Increase in the length of the code</li><li>b) Increase in the hardware of the system</li></ul>	t imply c) Automatic error correction d) Odd number of error detection
7.	How many characters per sec (7 bits + parity) ca asynchronous mode?	n be transmitted over a 2400-bps line ir
	a) 500	C) 520

asynchronous mode.	
a) 300	c) 320
b) 240	d) None of the above

- 8. A certain machine uses expanding opcode. It has 16 bit instructions and 6 bit addresses. It supports one address and two address instructions only. If there are 'n' two address instructions, the maximum number of one address instruction is
  - c)  $(2^4 n) \times 2^6$ d)  $2^{10}$ a)  $2^{16}$  - n b)  $2^{10}$  - n
- 9. In immediate addressing mode the operand is placed a) In the CPU register c) In the memory
  - d) In the stack memory b) After the OP Code in the instruction
- 10. Branch instructions are handled in pipelining using

a) Loop Buffer Strategy	c) Both (a) and (b)
b) Prefetch Target instruction strategy	d) None of the above

- 11. Which of the following remarks about the differences between constructors and destructors are correct?
  - a) Constructors can take arguments but destructors cannot.
  - b) Destructors can take arguments but constructors cannot.
  - c) Destructors can be overloaded but constructors cannot be overloaded.
  - d) None of the above.
- 12. A class having no name
  - a) cannot have a constructor.

c) cannot be passed as an argument.

d) all the above.

- b) cannot have a destructor.
- 13. If a class C is derived from class B, which is derived from class A, all through public inheritance, then a class C member function can access
  - a) protected and public data only in C and B.
  - b) protected and public data only in C.
  - c) private data in A and B.
  - d) protected data in A and B.

#### 14. Overloading the function operator

- a) requires a class with an overloaded operator.
- b) requires a class with an overloaded [] operator.
- c) allows you to create objects that act syntactically like functions.
- d) usually make use of a constructor that takes arguments.
- 15. Usually a pure virtual function
  - a) has complete function body.
  - b) will never be called.

c) will be called only to delete an

- object. d) is defined only in derived class.
- 16. A property which is not true for classes is that they
  - a) are removed from memory when not in use.
  - b) permit data to be hidden from other classes.
  - c) bring together all aspects of an entity in one place.
  - d) can closely model objects in the real world.

- 17. An exception is caused by
  - a) a hardware problem
  - b) a problem in the operating system
- 18. Consider the following class definitions:
  - class a
  - { };
  - class b: protected a
  - {};

What happens when we try to compile this class?

- a) Will not compile because class body of a is not defined.
- b) Will not compile because class body of b is not defined.
- c) Will not compile because class a is not public inherited.
- d) Will compile successfully.
- 19. Which of the following is not the characteristic of constructor?
  - a) They should be declared in the public section.
  - b) They do not have return type.
- 20. Reusability is a desirable feature of a language as it
  - a) decreases the testing time.
  - b) reduces the compilation time.
- 21. Overlays is
  - a) a part of Operating System.
  - b) a specific memory location.
  - c) a single contiguous memory that was used in the olden days for running large programs by swapping.
  - d) overloading the system with many user files.
- 22. Determine the number of page faults when references to pages occurs in the order 1,2,4,5,2,1,2,4. Assume that the main memory can accommodate 3 pages and the main memory already has the pages 1 and 2. With page 1 having been brought earlier that page 2(Assume LRU algorithm is used) ?
  - a) 3 b) 5

- d) None of the above.
- 23. A process can be put into a round-robin queue more than once for the purpose of a) improving CPU utilization. c) solving starvation problem.
  - b) improving response time.
- c) solving starvation problem.d) giving it a higher priority.
- 24. An operating system contains 3 user processes each requiring 2 units of resource R.The minimum number of units of R such that no deadlocks will ever arise is
  - a) 4.
  - b) 3.

c) 5.d) 6.

c) 4

constructor? c) They cannot be inherited.

c) a syntax error

d) a run-time error

- d) They can be virtual.
- c) reduces the execution time.
- d) None of the above.

- 25. Page fault frequency in an operating system is reduced when the
  - a) processes tend to the I/O-bound.
  - b) size of pages is reduced.

- c) processes tend to be CPU-bound.
- d) locality of reference is applicable to the process.
- 26. Memory utilization factor shall be computed as follows
  - a) memory in use/allocated memory.
  - b) memory in use/total memory connected.
  - c) memory allocated/free existing memory.
  - d) memory committed/total memory available
- 27. Which of the following approaches do not require knowledge of the system state?
  - a) deadlock detection.

c) deadlock avoidance.

b) deadlock prevention.

- d) none of the above.
- 28. Consider a disk with a disk block of size 1 KB and disk block address of 16 bits for a disk of 80 MB. How many free blocks are used to keep track of if 50% of the total disk blocks are free?
  - a) 40

c) 80

b) 160

d) None of the above.

- 29. In a paged segmented scheme of memory management, the segment table itself must have a page table because
  - a) the segment table is often too large to fit in one page.
  - b) each segment is spread over a number of pages.
  - c) segment tables point to page tables and not to the physical location of the segment.
  - d) the processor's description base register points to a page table.
- 30. In a multiprogramming environment
  - a) the processor executes more than one process at a time.
  - b) the programs are developed by more than one person.
  - c) more than one process resides in the memory.
  - d) a single user can execute many programs at the same time.
- 31. If  $A = \{(x,y)/y = x^2 \text{ where } x,y \in Z\}$  and  $B = \{(x,y)/y = x \text{ where } x,y \in Z\}$ , then a)  $n(A \cap B) = 0$ b)  $n(A \cap B) = 1$ c)  $n(A \cap B) = 2$ d)  $n(A \cap B) = 3$
- 32. Which of the following is not true?
  - a) If A and B are two sets, then  $B A = B \cap \overline{A}$
  - b) If A and B are two sets, then  $\overline{A} \cap \overline{B} = \overline{A \cup B}$
  - c) If A, B and C are three sets, then A (B C) = (A B) (A C)
  - d) If A, B and C are three sets then  $\overline{A} \cap (B \cap C) \subseteq (B \cap C)$
- 33.  $R_1$  and  $R_2$  are two relations which are equivalence in a set A, then
  - a)  $R_1 \cap R_2$  is equivalence on A.
- c) R<sub>1</sub>-R<sub>2</sub>is equivalence on A.d) None of the above.
- b)  $R_1 \cup R_2$  is equivalence on A.

34. If f: A →A where A ={x: -1 ≤ x ≤ 1} defined by f(x) = x |x|, then f is
a) one - one.
b) onto.
c) neither one - one nor onto.
d) both one - one and onto.

35. Which of the following proposition is tautology?

a)  $(P \cup Q) \rightarrow P$ 

b)  $P \rightarrow (P \cap Q)$ 

c)  $P \rightarrow (P \rightarrow Q)$ d)  $Q \rightarrow (P \rightarrow Q)$ 

- 36. A universal qualification is false if
  - a) all the substitution instances are true.
  - b) some of its substitution instances are true.
  - c) none of the substitution instance are false.
  - d) at least one substitution instance is false.

37. 'Every fairly looking student is not intelligent' which of the following option represent the above statement if S(x): x is a student, F(x): x is fairly looking, I(x): x is intelligent.
a) ∀ (x) [ S(x) ∧ F(x) → I(x)]
b) ∃ x [ S(x) ∧ F(x) ∧ ~ I(x)]
c) (∃ x) [ S(x) ∧ F(x) ∨ I(x)]
d) (∀ x) [ S(x) ∨ I(x) → ~ I(x)]

38. How many and symmetric relations are there on a set with 3 elements?

a) 64	c) 128
b) 512	d) 216

39. Consider the following statements:

$$\begin{split} S_1 &: (\forall_x \ A(x)) \to B \Leftrightarrow \exists_x \ (A(x) \to B) \\ S_2 &: (\exists_x \ A(x)) \to B \Leftrightarrow \forall_x \ (A(x) \to B) \end{split}$$

where B does not depend on variable 'x'. Then which of the following is true?

- a)  $S_1$  is true and  $S_2$  is false. c)  $S_1$  is false and  $S_2$  is false.
- b)  $S_1$  is false and  $S_2$  is true. d)  $S_1$  is true and  $S_2$  is true.
- 40. Which of the following states the principle of mathematical induction on the universe of positive integers?
  - a)  $P(1) \forall k [P(k) \rightarrow P(k+1)] \rightarrow \forall x P(x)$ b)  $P(1) \exists k [P(k) \rightarrow P(k+1)] \rightarrow \forall x P(x)$
  - c)  $P(1) \forall k [P(k+1) \rightarrow P(k)] \rightarrow \forall x P(x)$
  - d) P(1)  $\exists k [P(k+1) \rightarrow P(k+1)] \rightarrow \forall x P(x)$
- 41. When inorder traversing a tree resulted E A C K F H D B G; the preorder traversal would return

a) FAEKCDBHG	c) EAFKHDCBG
b) FAEKCDHGB	d) FEAKDCHBG

- 42. Which of the following is two way list?
  - a) grounded header list
  - b) circular header list

- c) linked list with header and trailer nodes
- d) none of above

43. Consider the following algorithms, where A is an array storing n integer values.

Algorithm PosNeg(A, n)	Algorithm ProcessPos(A, n)
Input: Array A of size n	Input: Array A of size n
for $k \leftarrow 0$ to $n - 1$ do {	i← 0
if $A[k] > 0$ then ProcessPos(A, n)	whilei< n do {
else $A[k] \leftarrow A[k] - 1$	for $j \leftarrow 0$ to $n - 1$ do {
}	$A[j] \leftarrow A[j] + 1$
	i← i + 1
	}
	}

What is the best characterization of the worst case time complexity of algorithm PosNeg?

a) $O(n)$	c) $O(n^2)$
b) $O(n^3)$	d) $O(n^2k)$

- 44. Two algorithms, P and Q, have time complexities p(n) and q(n), respectively. Assume that p(n) = O(q(n)) and  $q(n) \neq O(p(n))$ ; then, which of the following statements is true?
  - a) P is faster than Q for every input size n.
  - b) Q is faster than P for every input size n.
  - c) There is a value  $n_0 \ge 1$  such that Q is faster than P for every input size  $n \ge n_0$ .
  - d) There is a value  $n_0 \ge 1$  such that P is faster than Q for every input size  $n \ge n_0$ .

45. Match of the following

- P: implementation of Linked lists in arrays
- Q: Linked lists
- R: Graphs
- S: Stack & Queue

- 1) Not suited to random access
- 2) Not possible of insertion and deletion any where in the list.
- 3) Suited to networks.
- 4) Suitable where dynamic memory allocation not possible.
- a) P-4, Q-2, R-1, S-3
- b) P-4, Q-3, R-1, S-2

- c) P-3, Q-4, R-1, S-2
- d) P-4, Q-1, R-3, S-2
- 46. Figure shows a balanced tree. How many nodes will become unbalanced when a node is inserted as a child of the nodes 'g'?



47. How many comparisons are needed to sort an array of length 5 (whose elements are already in opposite order) using straight selection sort?

a) 5	c) 4
b) 20	d) 10

48. In which of the searching algorithms the elements must be in sorted order.

- a) Linear search algorithm b) Binery search algorithm d) All of the algorithm
- b) Binary search algorithm d) All of the above
- 49. Which of the following is false.
  - a) Adjacency matrix representation of a graph permits faster edge look up.
  - b) The adjacency matrix of a graph requires  $\theta(v^2)$  memory, independent of the number of edges in the graph.
  - c) Adjacency matrix representation can be used for weighted graphs.
  - d) All of the above.
- 50. Which of the following are the heaps?

i) 42, 35, 37, 20, 14, 18, 7, 10	
ii) 42, 35, 18, 20, 14, 30, 10	
iii) 20, 20, 20, 20, 20, 20	
a) i, ii & iii	c) i& iii
b) iⅈ	d) i

- 51. A relation R(A B C D E F) with fd set F = { AB  $\rightarrow$  CDE, CD  $\rightarrow$  E, E  $\rightarrow$  C}. Which of the following statement is false?
  - a) The above relation can be decomposed into 2NF with dependency preservation.
  - b) The above relation can be decomposed into 3NF with dependency preservation.
  - c) The above relation can be decomposed into BCNF with dependency preservation.
  - d) All the above.

52. An unnormalized relation contains values ?

- a) Atomic.b) Non Atomic.c) Classified.d) None of these.
- 53. A relation scheme is in \_\_\_\_\_ if it is in the 1NF and if all non prime attributes are fully functionally dependent on the relation key ?
  - a) First Normal Form.

c) Boyce Codd Normal Form.d) Fourth Normal Form.

b) Second Normal Form.

54. Manager's salary details are hidden from the employee. This is ?

- a) Conceptual level data hiding.
- b) Physical level data hiding.

- c) External level hiding.d) None of above.
- a hiding.
- 55. Goals for the design of the logical schema includes ?
  - a) Avoiding data inconsistency.
  - b) Being able to construct queries easily.
  - c) Being able to access data efficiency.
  - d) All of above.

#### 56. A data model is a collection of conceptual tools for describing

- a) Data and data relationships.
- b) Data semantics and consistency constraints.
- c) Data, data relationship, data semantics and consistency constraints.
- d) None of the above.

57. Consider the following relation scheme pertaining to a student data base.

Student: (rollno, name, address)

Enroll: (rollno. courseno, coursename)

Where the primary keys are shown underlined. The number of tuples in the student and the Enroll tables are 120 and 8 respectively. What are the maximum and the minimum number of tuples can be present in (student \* Enroll), where \* denotes natural join?

a)	8, 8	c)	960, 8
b)	120, 8	d)	960, 120

58. Choose the correct statement.

- a) Network models are complicated by physical keys, but the relational model is faster because it uses logical keys.
- b) Network models are complicated by logical keys, but the relational model is faster because it uses physical keys.
- c) Network models are complicated by logical keys, but the relational model is slower because it uses physical keys.
- d) Network models are complicated by physical keys, but the relational model is slower because it uses logical keys.

59. To delete a particular column in a relation the command used is:

a) UPDATE	c) ALTER
b) DROP	d) DELETE

60. \_\_\_\_\_\_ is a virtual table that draws its data from the result of an SQL SELECT statement.

a) View	c) Sequence
b) Synonym	d) Transaction

61. How many OSI layers are covered in the X.25 standard ?

a)	Three	c)	Six
b)	Two	d)	None of above

62. If a host broadcasts a frame that includes a source and destination hardware address, and its purpose is to assign IP addresses to itself, which protocol at the Network layer does the host use?

a)	RARP	C)	ICMF
b)	ARPA	d)	TCP

b) ARPA

School of Scien	<b>nces</b> 13
<ul><li>a) Size</li><li>b) Reliability</li></ul>	<ul><li>c) Productivity</li><li>d) Functionality</li></ul>
71. Which of the following is not a product matri	x ?
<ul> <li>70. TCP uses SWP to control the flow betwee empty space at receiver's side in terms of 'A 'Effective Window' that can be transferred fr a) Effective Window = Advertised Window - b) Effective Window = Advertised Window - c) Effective Window = Advertised Window + d) It cannot be calculated.</li> </ul>	n sender and receiver. TCP advertises its Advertised Window', then sender computes om sender and it is equal to (LastByteSent + LastByteAck) (LastByteSent - LastByteAck) - (LastByteSent -LastByteAck)
b) 4094	d) 1024
maximum number of hosts per subnet?	a) 2004
60 A class B network on the internet has a su	whet mask of $255255240.0$ . What is the
<ul><li>a) Simplex.</li><li>b) Half-duplex.</li></ul>	<ul><li>c) Full-duplex.</li><li>d) All of the above.</li></ul>
68 In a broad sense a railway track is an ayampl	e of
a) i, ii b) ii, iii	<ul><li>c) iii, iv</li><li>d) i, iv</li></ul>
<ul><li>67. Which of the below are not applied to token r</li><li>i. collisions</li><li>ii. limits on length of the cable</li></ul>	ing networks iii. time slots for transmission iv. usage of repeaters
b) 200 million times/sec	d) 500 million times/sec
a) 20 million times/sec	c) 50 million times/sec
66. An Ethernet LAN has the capability of 100 r	nbps. If Manchester encoding is being used
a) 1 b) 2	c) 3 d) 4
65. A code is hamming distance 6. What is the corrected	e maximum no. of bit errors that can be
<ul><li>64. Adaptive or dynamic directory used in packet</li><li>a) within each user session</li><li>b) with each user session</li></ul>	<ul><li>c) at system generation times only</li><li>d) Both A and B</li></ul>
<ul> <li>63. If the bit string 0111101111101111110 is s 01111110, the output string is ?</li> <li>a) 011110111110011111010</li> <li>b) 01111011111011111100</li> </ul>	<ul> <li>c) 01111011111011111010</li> <li>d) 0111101111101111110</li> </ul>
62 If the hit string 0111101111101111110 is s	which to bit stuffing for the flag string

72. In functional decomposition, the data flow diagram?

- a) is ignored
- b) is partitioned according to the closeness of the datagram and storage items
- c) is partitioned according to the logical closeness of the actigram
- d) Both A and C
- 73. In the system concepts, the term integration ?
  - a) implies structure and order.
  - b) refers to the manner in which each component functions with other component of the system.
  - c) means that part of the computer system depend on one another.
  - d) refers to the holism of system.
- 74. Rapid Application Development(RAD) is not appropriate when ?
  - a) Fast finding already done c) Testing is not needed
  - b) Technical risks are high

- d) None of above
- 75. Once object oriented programming has been accomplished, unit testing is applied for each class. Class tests includes ?
  - a) Fault based testing c) Partition teting b) Random testing d) All of above
- 76. ..... Developed a set of software quality factors that has been given the acronym FURPS - Functinality, Usability, Reliability, performance, Supportability ?
  - a) Hewlett Packard c) Booch
  - d) Jacobson b) Rambaugh

77. Which of the following is true?

- a) The black box concept assumes that the black box is independent.
- b) The black box concept assumes that the inputs and outputs will remain stable.
- c) The black box is invoked by describing a system in terms of input and outputs leaving the transformation process of a block box.
- d) All the above.

78. Figure below shows two separate program modules  $M_1$  and  $M_2$ . The cyclomatic complexity of each of the modules is 5.



What is the cyclomatic complexity of the sequential integration of  $M_1$  and  $M_2$  shown below?



79. The reliability of a program be 0.8. The reliability of an equivalent program (ie., another program that serves the same purpose) is 0.9. The probability that both the programs give the wrong result for the same input is

a)	0.72	c)	0.1
b)	1.7	d)	0.02

80. In object oriented design of software, objects have

- a) Attributes and name only c) Attributes, name and operations d) None of the above
- b) Operations and name only

81. A raster color display processor supports a resolution of 1024 x 800 with upto 16 million colors simultaneously displayable. What will be the approximate size of frame buffer used in the display processor? ~6

a)	$1.2 \times 10^{\circ}$	c)	16 x 10°
b)	$2.4 \times 10^{6}$	d)	$10^{5}$

82. Which of the following device has a relative origin?

- a) Joystick c) Mouse d) None of above b) Track ball
- 83. Reflection of a point about x-axis, followed by a counter-clockwise rotation of  $90^{\circ}$ , is equivalent to reflection about the line?
  - a) x = -y c)  $\mathbf{x} = \mathbf{y}$ b) y = -xd) x + y = 1
- 84. A bilinear transformation can be simulated by the transformation ?
  - a) transformation, rotation and c) rotation, stretching and inversion stretching
  - b) translation and rotation

- d) rotation, stretching, inversion and translation
- School of Sciences

- 85. When several types of output devices are available in graphics installation, it is convenient to use ?
  - a) bundled attributes

c) inquiry attributes

b) unbundles attributes

- d) all of above
- 86. (2,4) is a point on a circle that has center at the origin. Which of the following points are also on circle ?
  - a) (2,-4) c) (-4,2) b) (4,-2) d) All of above
- 87. A line connecting the points (1, 1) and (5, 3) is to be drawn, using the DDA algorithm. Find the value of x and y increments.
  - a) x-increment = 1; y-increment = 1
- c) x-increment = 1; y-increment = 0.5
- b) x-increment = 0.5; y-increment = 1
- d) none of the above.
- 88. Perform window to viewport transformation for the point (20, 15). Assume that (Xwmin, Ywmin) is (0, 0); (Xwmax, Ywmax) is (100, 100); (Xvmin, Yvmin) is (5, 5); (Xvmax, Yvmax) is (20, 20). The value of x and y in viewport is
  - a) x = 4; y = 4c) x = 8; y = 7.25b) x = 3; y = 3d) x = 3; y = 4
- 89. In the raster scan method for transformation, a  $90^{\circ}$  rotation can be performed by ?
  - a) reversing the order of bits within each row in the framebuffer.
  - b) by performing XOR on the frame buffer location.
  - c) by coping each row of the block into a column in the new frame buffer location.
  - d) none of above.
- 90. The anti aliasing technique which allows shift of 1/4, 1/2 and 3/4 of a pixel diameter enabling a closer path of a line is ?
  - a) Pixel phasing.
  - b) Filtering.

- c) Intensity compensation.
- d) Sampling technique.
- 91. An operational system is which of the following?
  - a) A system that is used to run the business in real time and is based on historical data.
  - b) A system that is used to run the business in real time and is based on current data.
  - c) A system that is used to support decision making and is based on current data.
  - d) A system that is used to support decision making and is based on historical data.

#### 92. Measures are in

- a) fact tables
- b) dimension tables

- c) both (a) & (b)
- d) none of the above

- 93. Slice operation performs
  - a) selection on one dimension of the given cube.
  - b) selection on two or more dimensions of the given cube.
  - c) rotation.
  - d) all the above.

94. Cube computation methods are a) ROLAP-based cubing algorithms c) Both (a) & (b) b) Array-based cubing algorithm d) None of the above 95. Apriori property belongs to a special category of proportion called a) Monotone. c) Both a & b. b) Anti-Monotone. d) None of the above. 96. An oblique tree is relevant when a) the attributes are correlated. c) there are only two attributes. b) the attributes are independent. d) all attributes are categorical. 97. Classification is used to predict class label of a. Continuous Values. c. Categorical Values. d. None of the above. b. Numeric 98. Which of the following approach requires complex information filtering and integration processes and competes for resources with processing at local sources? a) Update driven approach c) Query driven approach b) Integrate driven approach d) Data driven approach 99. database server in warehouse architecture is a) bottom tier. c) top tier. b) middle tier. d) all the above. 100. A subset of a data warehouse for a single department or function is defined as

- a) a data cube
- b) a data mart
- c) both (a) & (b)
- d) None of the above

### M.Phil. / Ph.D. ENTRANCE TEST - SEPTEMBER, 2012 DEPARTMENT OF HOME SCIENCE FOOD & NUTRITION SCIENCES

#### Time: 3 hours

#### Max.marks:100

Answer any **Five** questions All questions carry equal marks

(5X20=100)

- 1. List thrust areas in your subject; develop research proposals for any one area.
- 2. Illustrate the need of water in growth and development of human being.
- 3. Explain the role of ca in metabolism of proximate principles.
- 4. Discuss different food prcessing techniques involved in novel proteins.
- 5. List high energy compounds. Explain the role of high energy compound in biochemical energetic.
- 6. Explain in detail about determination of iron from green leafy vegetables.

#### (or)

Explain energy and nutrient cycles in our environment

(or)

Explain the role of dietitian in control of non communicable diseases.

7. Explain different aspects of sensory evaluation of new protein rich product.

(or)

Identify supporting system available to improve vitamin A status in preschool children through participatory appraisal

(or)

Discuss dietary management for 40 yr old liver cirrhosis men.

8. List food born diseases and explain risk factors associated food borne illness.

#### (or)

Explain prevalence of HIV/AIDS in India and explain different stages of HIV/AIDS.

(or)

Plan a nutritional care process for childhood obesity.

## M.Phil. / Ph.D. ENTRANCE TEST - SEPTEMBER, 2012 DEPARTMENT OF HOME SCIENCE HUMAN DEVELOPMENT AND FAMILY STUDIES

#### Time: 3 hours

#### Max.marks:100

Answer any **Five** questions All questions carry equal marks (5X20=100)

- 1. List the thrust areas of research in Human Development and Family Studies. Prepare a research proposal on any topic of your choice.
- 2. What are the common causes for family friction during adolescent period? Suggest methods for helping adolescents to deal with the problems.
- 3. Trace the scope of the theories of human development with examples.
- 4. Discuss the advantages of breast feeding and the need for celebration of International week for breast feeding.
- 5. Discuss the different roles of the parents. Critically examine the need for parent education in the present Indian context.
- 6. Discuss the alternatives to conventional marriage.
- 7. Describe the nature, type and causes of speech and language disorders.
- 8. Delineate the role of mass media in personality development of children in the present Indian scenario.

#### SRI PADMAVATHI MAHILA VISVAVIDYALAYAM::TIRUPATI (Women's University) Ph.D. Entrance Test - September, 2012 INSTITUTE OF PHARMACEUTICAL TECHNOLOGY

Time	: 3hours	Max. Marks: 100
	Answer any <b>Five</b> questions All questions carry equal marks	(5×20=100)
1.	<ul><li>a) Describe stability testing of solid drugs according to ICH guidelines</li><li>b) Explain any two methods to prepare controlled drug delivery syst advantages and disadvantages.</li></ul>	(10) tems and give their (10)
2.	<ul><li>a) Explain the principles &amp; theory involved in HPLC.</li><li>b) Discuss the instrumentation of HPLC with a neat labelled diagram. Write a note on factors affecting column efficiency in HPLC.</li><li>c) Write the applications of HPLC.</li></ul>	(4+6) (4) (6)
3.	<ul><li>a) What is HPTLC? Discuss various steps involved in HPTLC method HPTLC.</li><li>b) Write the pharmaceutical applications of HPTLC.</li></ul>	the advantages of (2+7+4) (7)
4.	Discuss the various types of electronic transitions involved in UV Spectra a effect of polarity of solvent on $n \rightarrow \prod^*$ and $\prod \rightarrow \prod^*$ transitions with example	and also explain the es. (20)
5.	a) Write a note on various sampling techniques involved in IR Spectra.	(12)
	<ul> <li>b) Write characteristic absorption bands of below functional groups.</li> <li>i) Aldehydes</li> <li>ii) Ketones</li> <li>iii) Carboxylic acids</li> <li>iv) Ethers</li> </ul>	(8)
6.	Explain the procedure of new drug approval through IND and NDA.	(20)
7.	Write about the following a) One- way ANOVA b) X-ray diffractometry.	(10+10)
0	$\mathbf{T}$ = 1 and 1 = 0.0 and 1 = 1 and 1 = 1 and 1 and 1 and 1 and 1 = 0.0 and 1 = 0.0 and 0 = 0.0 and	1 . 2 1

8. Two brands of foods were administered to two groups of children of age between 1 to 3 years and their gain in weight was recorded after 6 months of administration.

Food	1	2	3	4	5	6	7	8
А	6	8	10	7	12	9	5	7
В	10	14	8	6	15	7		

Test whether there is any significant difference between brands of food A and B at probability level 0.01 (t=3.055 at 12 d.f and 1% level of significance). (20)

## SRI PADMAVATHI MAHILA VISVAVIDYALAYAM::TIRUPATI (Women's University) M.Phil./Ph.D. Entrance Test - September, 2012 DEPARTMENT OF SERICULTURE

#### Time: 3 Hrs

#### Max.Marks:100

Answer any **FIVE** questions All questions carry equal marks

5x20=100

- 1. Explain the methodology followed in the production of good quality cocoons for the gradable silk
- 2. Explain in detail the principles and practices of plant propagation methods with special reference to mulberry.
- 3. Give a detail account of optimum environment required for healthy growth and development of silkworm to qualitative and quantitative characters of cocoon crop.
- 4. Discuss the structure, properties and biological significance of Carbohydrates?
- 5. Give a detailed account on methods of Sterilization for microbial studies and discuss the significance of sterilization
- 6. Define extension education, discuss the need of extension education and explain in detail the various extension teaching methods for effective transfer of technology
- 7. Discuss in detail about the cocoon stifling, cocoon storage and preservation of cocoon in silk reeling units.
- 8. Give a detailed account of genetics of voltinism and moultinism in silkworm *Bombyx mori* and add a note on genetics of Cocoon colors

## Model Question paper for RESET in Zoology

## Answer any five questions All questions carry equal marks

Time: 3 Hrs

Total Marks:100 20X5=100 marks

- 1. Explain the ciliary and flagellar movements in protozoa.
- 2. Describe the structure and classification of proteins in detail.
- 3. Write a detailed account on the respiratory organs of chordates.
- 4. Explain the sex influenced genes in man.
- 5. Discuss the osmoregulation in fresh water and marine animals.
- 6. Describe the classification and chemical nature of vertebrate hormones in detail.
- 7. Discuss the molecular vectors in detail.
- 8. Write an essay on different techniques of chromatography.

# SCHOOL OF SOCIAL SCIENCES, HUMANITIES & MANAGEMENT

## SRI PADMAVATHI MAHILA VISVAVIDYALAYAM::TIRUPATI (Women's University)

M.Phil./Ph.D. Entrance Test - September, 2012

#### DEPARTMENT OF COMMUNICATION AND JOURNALISM

#### Time: 3 hrs

Max. Marks: 100

Answer any **FIVE** questions **Question No. 1 is compulsory** All questions carry equal marks

(5X20=100)

- 1. Design a research proposal for a topic of your choice, giving the details of the objectives, rationale for your topic and the methodology that you think is apt for your topic.
- 2. Trace the history and growth of newspapers in India.
- 3. Write a two-minute script for a radio jingle on MGNREGA.
- 4. Explain the various stages and programme formats for producing a television programme.
- 5. How does cross-media ownership effect circulation in the mass media.
- 6. Discuss the conflict of interest between ethics in journalism and functions of the media with suitable examples.
- 7. What are the different levels of measurement? Explain with suitable examples.
- 8. Discuss the role of social media in advertising and public relations.

#### M.Phil./Ph.D. ENTRANCE TEST – SEPTEMBER, 2012 DEPARTMENT OF EDUCATION

Time: 3 hours

#### Max.marks:100

Answer any Five questions

#### **Question No. I is compulsory**

All questions carry equal marks (5×20=100)

- 1. You are interested to find out the relative effectiveness of computer assisted instruction over conventional instruction. Write a research proposal to conduct above study.
- 2. Write in detail the relationship between philosophy and education and the use of knowledge of philosophy for a teacher.
- 3. Define Intelligence. Explain any one group test of intelligence in detail.
- 4. What is Interest? What is the necessity of measuring interest of students for a teacher?
- 5. Explain the need for classification and tabulation of data in a research.
- 6. What are parametric and non-parametric tests? Explain in detail with an example for each.
- 7. Explain SPSS package and its utility in educational research.
- 8. Explain different measures of variability and discuss their use in educational research.

#### M.Phil./Ph.D. Entrance Test - September, 2012 DEPARTMENT OF ENGLISH LANGUAGE & LITERATURE

## Time: 3 Hrs Max.Marks:100

Answer any **FIVE** questions **Question No.1 is compulsory** All questions carry equal marks

(5x20=100)

- 1. How do you choose your research topic and what is the methodology you wish to adopt in carrying out your research?
- 2. Explain the important characteristics of Shakespearean tragedy and show how it differs from classical tragedy.
- 3. Discuss the influence of French Revolution on the literature of Romantic Period.
- 4. Why is the modern age called the "Age of Anxiety and Interrogation"?
- 5. Assess the contribution of Whitman or Saul Bellow to American literature.
- 6. What are the issues and concerns of an African writer?
- 7. "Dalit literature is a literature of social protest and human enlightenment". Explain
- 8. Explain the critical assumptions of Feminist Criticism.

#### Ph.D. ENTRANCE TEST – SEPTEMBER, 2012 DEPARTMENT OF LAW

#### Time: 3 hours

Max.marks:100

Answer any **Five** questions **Question No. I is compulsory** All questions carry equal marks

(5×20=100)

- 1. Write a research proposal on a topic of your interest.
- 2. Elucidate basic structure theory of the Indian Constitution.
- 3. Define Grund Norm and explain Kelsen's Pure theory of Law.
- 4. Critically examine the impact of Liberalisation, Privatisation and Globalisation on Indian Labour Laws.
- 5. Define Rape and explain the recent developments in rape Laws.
- 6. Discuss about International Conventions and Recommendations relating to Intellectual Property Rights.
- 7. Critically examine the principle of strict/ absolute liability of State and Multi National Companies.
- 8. What is Rule of Law? Discuss elaborately principles of Natural Justice.

## M.Phil./Ph.D. Entrance Test - September, 2012 DEPARTMENT OF MUSIC & FINE ARTS

#### Time: 3 hrs

Max. Marks: 100

Answer any **FIVE** questions **Question No. 1 is compulsory** All questions carry equal marks

5X20=100

- 1. Write an essay on 'Music and Research'.
- 2. Explain the distinctive features of the 'Modern Period' in the history of Indian Music.
- 3. Bring out the contributions of Sarangadeva to Indian music.
- 4. Describe the musical contributions of Syama Sastry.
- 5. Explain the Dhruva Veena and Chala Veena experiment.
- 6. Give the ragalakshanas of

(a) Sankarabharanam (b) Bhairavi

- 7. What are the characterestics of folk music? Explain with suitable examples.
- 8. Write short notes on any TWO of the following:
  - (i) Tolubommalata
  - (ii) Prasa and Music
  - (iii) Prabandha

## M.Phil./Ph.D. Entrance Test - September, 2012

#### DEPARTMENT OF SOCIAL WORK

#### Time: 3 hrs

Max. Marks: 100

Answer any **Five** questions **Question No. 1 is compulsory** All questions carry equal marks

(5X20=100)

- 1. Write a research proposal on a topic of your interest.
- 2. Discuss the relevance of Social Work Philosophy, values, ethics and principles in the current Indian context.
- 3. Bring out the salient features of Social Action as a method of social work with appropriate illustrations.
- 4. Elucidate the scope and approaches for social work practice in community development.
- 5. Explain the process of family centered social work practice.
- 6. Trace the evolution of social work in the field of health and mental health in India.
- 7. "A research sample should be truly representative of the population characteristics'. Explain.
- 8. Elucidate the difference between social research and social work research.

## M.Phil./Ph.D. Entrance Test - September, 2012 DEPARTMENT OF TELUGU STUDIES

Time: 3 hours

Max.marks:100

Answer any **Five** questions **Question No. I is compulsory** All questions carry equal marks

(5×20=100)

1.తెలుగు సాహిత్య పరిశోధన వలన ఉన్న ప్రయోజనమేమిటి?

2.భాషా లక్షణాలను వ్యక్తం చేయండి

3. శివకవియుగ సాహిత్య ప్రత్యేకతలను విశ్లేషించండి

4.ఆధునిక సాహిత్య ఉద్యమాలను వివరించండి

5.తెలుగు సాహిత్యంలో స్వీయచరిత్రల ప్రాధాన్యతను తెల్పండి

6.దశ రూపకాలను పరిచయం చేయండి

7.అనువాదాన్ని నిర్వచించి, అనువాదంలో తలెత్తే సమస్యలను పేర్కొనండి

8.జానపద గేయ సాహిత్యాన్ని వివరించండి

School of Social Sciences, Humanities & Management

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## M.Phil./Ph.D. Entrance Test - September, 2012 DEPARTMENT OF WOMEN'S STUDIES

Time: 3 hours

Max.marks:100

Answer any **Five** questions **Question No. I is compulsory** All questions carry equal marks

(5×20=100)

- 1. Write a research proposal on a topic of your choice.
- 2. What is meant by Women's Studies? Write in detail about its objectives, genesis and scope in India.
- 3. Explain the status of women in pre independent period.
- 4. Define Feminism and compare the liberal and radical feminists' ideologies.
- 5. Analytically write about the paradigm shift from women's development to women's empowerment.
- 6. Conceptually explain about nutrition and health and discuss the interrelationship between nutrition and health.
- 7. Briefly write about the A.P. Government Programmes for Women's Development.
- 8. Sexism exists with regard to social research activities. Explain.