

MAHATMA GANDHI UNIVERSITY

(Abstract)

DD MCA – Model Question papers – V semester - Approved –orders issued.

ACADEMIC AIV SECTION

U.O.No. 5612/AIV/2/Acad/2016.

Dated: P.D.Hills, 25/10/2016 .

Read:- Letter from the Chairman, Board of Studies in Computer Science (PG)
dated 03/10/2016.

ORDER

The Chairman, Board of Studies in Computer Science (PG) vide paper read above has forwarded the Model Question papers of the V semester DD MCA (2014 admission) with the following papers.

V semester DD MCA

1. D MCA 501 - Operations Research
2. D MCA 502 - PHP Programming
3. D MCA 503 - Linux & Shell Programming
4. D MCA 504 - Computer Networks
5. D MCA 505 - Software Engineering

The Pro - Vice Chancellor has approved the above Model Question papers.

Orders are issued accordingly.

Sd/-

SREERAJ R

ASSISTANT REGISTRAR II (ACAD)

For REGISTRAR

Copy to:-

1. PS to VC/PVC
2. PA to Registrar/CE
3. AR/DR/JR (Exam).
4. EB –II (Along with model question papers).
5. EI XIV
6. Content Management section
7. Stock File/File Copy/Records Section

FORWARDED BY ORDER

P. S. S. S.
SECTION OFFICER

File No.Ac.AIV/3/MCA/2015

MAHATHMA GANDHI UNIVERSITY
DDMCA DEGREE EXAMINATION
MODEL QUESTION PAPER
DMCA501 Operations Research (Fifth Semester)

Time : 3 Hours

Maximum: 75 Marks

Part A

Answer any 10 questions

Each question carries 3 marks

1. Explain slack and surplus variables. Give examples.
2. A company has two types of pens say A and B. Pen A is a superior quality and Pen B is a lower quality. Profit on Pen A and Pen B are Rs.5 and Rs.3 per pen respectively. Raw material required for each pen A is twice as that of pen B. The supply of raw material is sufficient only for Rs.1000 pens of B per day. Pen A requires a special clip and only 400 such clips are available per day. For pen B, only 700 clips are available per day. Formulate the problem into a L.P
3. What is degeneracy in transportation problem. How will we solve degeneracy?
4. Write down the dual of the LPP
Min: $Z=4x_1+3x_2+6x_3$
 $x_1+x_2 \geq 2$
 $x_2+x_3 \geq 5$
 $x_1 \geq 0, x_2 \geq 0, x_3 \geq 0$
5. Write a short note on traveling salesman problem.
6. Write a short note on two person zero sum game.
7. What is Principle of Dominance?
8. What do you mean by crashing? Give two advantages?
9. What are transient and steady states of queuing system?
10. Define Free float, Total float and Slack of an event.
11. Write advantage and disadvantage of simulation?
12. Define Pseudo random numbers.

Part B

All questions carry 9 marks

13. i) An Electric Appliance company produces two products refrigerators and ranges. Production takes place in two separate departments. Refrigerators are produced in Department I and ranges are produced in department II. Company's two products are produced and sold on a weekly basis. $3x_1+5x_2+4x_3$ The company regularly employs a total of 60 workers in two departments. A refrigerator requires 2 man-week of labour, while a range requires 1 man-week of labour. A refrigerator contributes a profit of Rs.60 and a range a profit of Rs.40. Formulate the problem into an LPP so as to maximize the contribution.

Then solve it graphically and by using simplex method.

OR

- ii) Solve Maximize: $3x_1 + 5x_2 + 4x_3$
 subject to: $2x_2 + 5x_3 \leq 10$
 $2x_1 + 3x_2 \leq 8$
 $3x_1 + 2x_2 + 4x_3 \leq 15$
 $x_1 \geq 0, x_2 \geq 0, x_3 \geq 0$

14. i). Solve the following transportation problem

	D1	D2	D3	D4	SUPPLY
S1	3	7	6	4	5
S2	2	4	3	2	2
S3	4	3	8	5	3
DEMAND	3	3	2	2	

OR

ii). Solve the following assignment problem.

	A	B	C	D	E
a	85	75	65	125	75
b	90	78	66	132	78
c	75	66	57	114	69
d	80	72	60	120	72
e	76	64	56	112	68

15. ii) The following table list the activities of a network along with their time estimates

Activity	t_0	t_m	t_p
1-2	3	6	15
1-6	2	5	14
2-3	6	12	30
2-4	2	5	8
3-5	5	11	17
4-5	3	6	15
6-7	3	9	27
5-8	1	4	7
7-8	4	19	28

- 1) Calculate the length and variance of the critical path
- 2) What is the probability that the project will be completed in (a) 40 days

(b) 33days

3) With 90% confidence what due date can be fixed for the completion of the project.

OR

ii) Solve the following game. The pay off matrix is given below.

	B ₁	B ₂	B ₃	B ₄
A ₁	4	-2	3	-1
A ₂	-1	2	0	1
A ₃	-2	1	-2	0

16. **A.** Customer arrive in a window drive in bank according to Poisson distribution with mean 10 per hour. Service time per customer is exponential with mean 5 minutes. The space in front of the windows, including that for the serviced car can accommodate a maximum of 3 cars. Others can wait outside this space

i) What is the probability that the arriving customer can drive directly to the space in front of the window

ii) What is the probability that arriving customer will have to wait outside the indicated space?

iii) How long is an arriving customer expected to wait before starting service?.

OR

B. The belt snapping for conveyers in open cast mine at the rate of 2 per shift. There is only one hot plate available for vulcanizing and it can vulcanize on an average 5 belt snap per shift.

i) What is the probability that when a belt snaps, the hot plate is readily available.

ii) What is the average number in the system.

iii) What is the waiting time of an arrival.

iv) What is the average waiting time plus vulcanizing time.

17. **A.** A confectioner sells confectionery items. Past data of demand per week (in 100kg) with frequency is given below

Demand/ Week	0	5	10	15	20	25
Frequency	2	11	8	21	5	3

Use the following sequence of random numbers, generate the demand for the next 10 weeks. Also find the average per week:

35,52,90,13,23,73,34,57,35,83,94,56,67,66,60.

OR

B. i) Explain process of simulation?

(3)

ii) Describe Monte Carlo method of simulation.

(6)

MAHATHMA GANDHI UNIVERSITY
DDMCA DEGREE EXAMINATION
MODEL QUESTION PAPER
DMCA 502 PHP Programming
(Fifth Semester)

TIME : 3 HRS.

MAX. 75 MARKS

PART A

Answer any **ten** questions - EACH QUESTION CARRIES 3 MARKS.

1. What is PHP, its syntax and comments?
2. Difference between echo and print in PHP?
3. Explain any three array functions with example?
4. Explain conditional operator?
5. What is functions and its syntax?
6. Write a note on Static Methods with example?
7. Write a note on prepared statement?
8. Write a program to find reverse of a number using PHP?
9. Write a note on Reflection?
10. Difference between variables and constants in PHP?
11. Write a note on class and objects in PHP
12. Implement creation of session & destroy the session in a web page

PART B

EACH QUESTION CARRIES 9 MARKS.

13. Explain in detail about Control Structures in PHP
OR
14. Explain in detail about Language Constructs in PHP
15. Write a note on a) Call by Value b) Call by reference c) Variable Scope
OR
16. Describe in detail about arrays.
17. Write a note on a) Modifiers b) Inheritance
OR
18. Write a note on a) Formatting b) Matching c) Extracting
19. Explain in detail about get and post method in PHP with examples?
OR
20. Difference between Session and Cookie with example?
21. Explain Files in detail?
OR
22. Implement Database connectivity. Write a program to insert, update and delete an element from database.

MAHATHMA GANDHI UNIVERSITY
DDMCA DEGREE EXAMINATION
MODEL QUESTION PAPER
DMCA503 Linux & Shell Programming
(Fifth Semester)

Time : 3Hours

Maximum : 75marks

Part A

Answer any ten questions

All questions carry equal marks

1. Which are the widely used shells in Linux?
 2. Give any three features of Redhat Linux
 3. What is an inode?
 4. Explain the following commands: write, finger, chfn
 5. Write the steps involved in changing the password of a user
 6. Explain the working of expr command with an example
 7. What are the compression utilities supported by Linux?
 8. What is telnet?
 9. What are configuration files?
 10. How can you create groups in Linux?
 11. Does the Linux kernel internally operate with virtual or physical addresses? Justify.
 12. What are filters? Give an example.
- (10 x 3=30 marks)

Part B

All questions carry equal marks

13. (a) Describe the architecture of Linux operating system.
- Or*
- (b) What are text editors? Explain the features of vi editor.

14.(a) How Linux shell and file structure are organized? Explain.

Or

(b) Explain the loop statements in Unix.

15.(a) How will you set permissions for owner, group and public?

Or

(b) Explain the common administrative tasks in Linux.

16.(a) Explain the steps to install packages

Or

(b) How do get system information in Linux?

17.(a) Discuss traceroute and FTP utilities in detail.

Or

(b) Explain the different various backup strategies

(5 x 9 =45marks)

MAHATHMA GANDHI UNIVERSITY
DDMCA DEGREE EXAMINATION
MODEL QUESTION PAPER
DMCA504 COMPUTER NETWORKS
(Fifth Semester)

Time :Three Hours

Maximum : 75 Marks

Part A

Answer any ten questions.

1. What is network? What are the three criteria necessary for an effective and efficient network?
2. Mention different categories of computer networks (on the basis of scale) and distinguish one from the other.
3. What is cyclic redundancy check?
4. Explain the IEEE LAN generic MAC frame format.
5. Explain CSMA/CA.
6. For n devices in a network, what is the number of cable links required for a mesh and ring topology?
A fully connected mesh network has $n(n-1)/2$ physical channels to link n devices. For n devices in a network, what is the number of cable links required for a ring topology is n .
7. Mention the different kinds of Ethernet networks.
8. Which are the networking devices?
9. What is a Piconet?
10. Explain the role of virtual circuit
11. Discuss the ATM Layers.
12. Explain the services of transport layer

Part B

All questions carry equal marks.

13(a) Enumerate the tasks performed by the different layers in the OSI layered architecture

OR

13(b) Explain how Sliding window protocol is used for flow control.

14(a) Explain CSMA/CD protocol and explain how it detects collision

OR

14(b) Describe the structure of IEEE802.3 MAC frame

15(a) Explain the architecture of IEEE802.11 with neat diagram

OR

15(b) Discuss Bluetooth Architecture with neat diagram

16(a) Differentiate adaptive routing and fixed routing.

OR

16(b) Explain the switching techniques.

17(a) explain the asynchronous TDM

OR

17(b) Describe ATM cell format with necessary diagram.

MAHATHMA GANDHI UNIVERSITY
DDMCA DEGREE EXAMINATION
MODEL QUESTION PAPER
DMCA 505 Software Engineering
(Fifth Semester)

Time : Three hours

Maximum : 75 Marks

Part A

Answer any ten questions.

Each question carries 3 marks.

1. What is a process framework? Name the framework activities applicable to all software projects.
2. Mention three software myths.
3. List down any three Agile Principles.
4. Briefly explain the design concepts – Abstraction, Modularity and Refactoring.
5. What is software architecture? What is its importance?
6. Briefly describe the quality function deployment technique.
7. Explain the process of formal technical reviews.
8. Mention three attributes and the corresponding metrics for code quality.
9. Briefly describe any three attributes of a good test.
10. Discuss the regression testing strategy and its significance.
11. Explain the approach used to adapt the function point approach of estimation to web application projects.
12. Describe the steps involved in the computation of SPI and SV.

(10 x 3 = 30 marks)

Part B

All questions carry equal marks.

13. a) What is the importance of models in software engineering? Explain with examples of any three process models which are commonly used.

Or

b) Discuss the Agile development.

14. a) A meeting scheduler system is meant to manage group meetings to be conducted in a company. Develop the use case diagram for this system. Specify and briefly describe any two important use-cases. For each of these two use cases, construct a neat, complete sequence diagram (in UML notation) showing a successful interaction scenario. You should state clearly any reasonable assumption you make about the system.

Or

- b) Describe the important principles and steps of user interface analysis and design.
15. a) Describe the metrics for the design model of a product. What are the attributes of effective software metrics?

Or

- b) Compare and contrast the similarities and differences between software configuration management for conventional software development and SCM for a web-based application development.
16. a) Suppose a program contains 4 decision points, each of which has two branches. How many test cases are needed to perform path testing on such a program? Show clearly how you arrived at the answer.

Or

- b) Describe the various testing strategies.
17. a) Estimate the effort required to develop software for a simple module that produces 15 screens, 10 reports and will require around 100 software components. Assume average complexity and average developer / environment maturity. Use the Application Composition Model of COCOMO-II with Object Points. State any assumptions you make.

Or

- b) Explain elaborately the various strategies and steps involved in risk management.

(5 X 9 = 45 marks)