

Slot: C

Reg. No. : 36

Name: RITWIK

**ALBERTIAN INSTITUTE OF SCIENCE & TECHNOLOGY**

AISAT – TECHNICAL CAMPUS, Kalamassery

B. Tech/ M. Tech First Internal Examination (February 2018)

Branch and Semester: CS S4

Course Code: CS 204

Course Name: Operating Systems

Max. Marks: 60

Duration: 2 Hours

**Part A**

Answer all questions.

1. How do clustered systems differ from multiprocessor systems? (3 Marks)
2. What is the role of timer in operating system? (3 Marks)
3. Discuss the different states of a process. (3 Marks)

**Part B**

Answer all questions.

4. Discuss any two kernel data structures. (4.5 Marks)
5. Explain the system boot process. (4.5 Marks)
6. What is meant by a process control block? Discuss its significance. (4.5 Marks)
7. Differentiate between medium term and long term scheduler. (4.5 Marks)

**Part C**

Answer all questions.

8. How does the distinction between kernel mode and user mode function as a basic form of protection system? (6 Marks)
9. Explain how a new process can be created in UNIX using fork system call. (6 Marks)
10. With the help of a diagram, describe the actions taken by a kernel to context-switch between processes. (6 Marks)
11. Write Short notes on Inter Process Communication (6 Marks)
12. Draw the Gantt chart and find the average waiting time for the following algorithms:
  - a. FCFS
  - b. Shortest Remaining Time First
  - c. Priority Scheduling

Process No	Arrival Time (msec)	Burst time (msec)	Priority
P0	0	8	5
P1	1	4	2
P2	2	1	1
P3	3	5	3
P4	4	2	4

(9 Marks)

Slot: D

Reg. No. : AIKUCSE36

Name: ..B.I.T.W.I.K: D.....

**ALBERTIAN INSTITUTE OF SCIENCE & TECHNOLOGY**

AISAT – TECHNICAL CAMPUS, Kalamassery

B. Tech/M. Tech First Internal Examination (February 2018)

Branch and Semester: CS S4

Course Code: CS 206

Course Name: Object Oriented Design and Programming

Duration: 2 Hours

Max. Marks: 60

**Part A**

Answer all questions.

1. What are the roles of a constructor? (3 Marks)
2. Differentiate **while** and **do-while** iterative statements (3 Marks)
3. Write example for the *for-each* version of **for** loop (3 Marks)
4. What is the role of Java Virtual Machine (3 Marks)
5. List out the features of java (3 Marks)
6. Give example for using **break** as a form of **goto** (3 Marks)
7. What is the use of **finalize()** method? (3 Marks)
8. Give example code for parameterized constructors (3 Marks)

**Part B**

Answer all questions.

9. Describe the different jump statements in java with example. (9 Marks)
10. Explain the concept of method overloading in java with examples (9 Marks)
11. A. Write notes on Shift operators with examples (6 Marks)
- B. Give example for ? operator (3 Marks)
12. Describe different parameter passing mechanisms available in java (9 marks)

**Slot: B**

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**AISAT – TECHNICAL CAMPUS, Kalamassery**

**B. Tech/ M. Tech First Internal Examination (February 2018)**

**Branch and Semester: CSE S4**

**Course Code: CS202**

**Course Name: Computer Organization And Architecture**

**Max. Marks: 60**

**Duration: 2 Hours**

**Part A**

*Answer all questions carrying 5 marks each.*

- ✓ 1. Differentiate between big endian and little endian byte ordering. (5 marks)
- ✓ 2. What is software? With examples list out the various types of software. (5 marks)
- ✓ 3. Write notes on condition codes. (5 marks)
- ✓ 4. Explain the process of fetching a word from memory using a single bus organization. Also specify which all control signals will be activated. (5 marks)
- ✓ 5. Describe basic instruction types. (5 marks)
- ✓ 6. Given the following memory values and a one address machine with an accumulator. (5 marks)

Memory Location	Value
20	40
30	50
40	60
50	70

What values do the following instructions load into the accumulator?

- a) Load Immediate 20
- b) Load Direct 20
- c) Load Indirect 20
- d) Load Immediate 30
- e) Load Direct 30

**Part B**

*Answer any 3 questions carrying 10 marks.*

- ✓ 7. Explain the different addressing modes with examples. (10 marks)
- ✓ 8. Explain terms processor stack, stack frame and frame pointer with relation to subroutine processing. (10 marks)
- ✓ 9. Explain the execution of a complete instruction. (10 marks)
10. Write notes on multiple bus organization. (10 marks)



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**AISAT – TECHNICAL CAMPUS, Kalamassery**

**B. Tech/ M.Tech First Internal Examination (February 2018)**

**Branch and Semester: ME/CE/CS/EE S4**

**Course Code: MA202**

**Course Name: PROBABILITY DISTRIBUTIONS, TRANSFORMS AND  
NUMERICAL METHODS**

**Max. Marks: 60**

**Duration: 2 Hours**

**Part A**

*Answer all questions.*

1. a) A random variable X has the following probability distribution

Values of X, x	0	1	2	3	4	5	6	7	8
p(x)	a	3a	5a	7a	9a	11a	13a	15a	17a

Find (i) value of a

(ii)  $P(X \geq 3)$

(iii)  $P(2 \leq X \leq 5)$

(7 marks)

- b) Five fair coins are flipped. If the outcomes are assumed independent, find the probability mass function of the number of heads obtained.

(8 marks)

- 2 a) If 3% of electric bulbs manufactured by a company are defective, Use Poisson distribution to find the probability that in sample of 100 bulbs

(i) 0

(ii) 1

(iii) 2

are defective.

(7 marks)

- b) Show that for a Poisson distribution with parameter  $\lambda$ , Mean = Variance =  $\lambda$ .

(8 marks)

**Part B**

*Answer all questions.*

- 3 a) Find the value of k for the probability density  $f(x)$  given below and hence find its mean and variance.

$$f(x) = \begin{cases} kx^3, & 0 < x < 1 \\ 0, & \text{otherwise} \end{cases}$$

(7 marks)

(P.T.O)

b) If  $X$  is uniformly distributed with mean 1 and variance  $\frac{4}{3}$ , find  $P(X < 0)$  and  $P(X > 0)$ .

$$\frac{\Delta p}{\Delta x}$$

$$\frac{(\beta - \alpha)^2}{12}$$

(8 marks)

4 a) In a photographic process, the time to process 8 x 10 prints from a memory card may be looked upon as a random variable having the normal distribution with a mean of 16.28 seconds and a standard deviation of 0.12 seconds. Find the probability that it will take

(i) anywhere from 16.00 to 16.50 seconds to process one of the prints

(ii) at least 16.20 seconds to process one of the prints

(iii) at most 16.35 seconds to process one of the prints

(7 marks)

b) The mileage which car owners get with certain kind of radial tyre is a random variable having an exponential distribution with mean 4000km. Find the probabilities that one of these tyres will last (i) at least 2000km (ii) at most 3000 km

(8 marks)

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