

**NEW**

**2017**

**Part II 3-Tier**

**COMPUTER SCIENCE**

**PAPER—IIA**

**(General)**

*Full Marks : 50*

*Time : 2 Hours*

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**Group—A**

*(Operating System)*

Answer any two questions.

2×10

1. (a) Write the difference between multiprogramming and multi-processing. 5
- (b) Write a short note on batch processing. What is an operating system. 3+2

*(Turn Over)*

2. (a) What is Process Control Block (PCB)? What are the contents of PCB? 2+3
- (b) What is a process? Write the different states of a process. 2+3
3. (a) What is scheduler? Differentiate between long term scheduler and short term scheduler. 2+3
- (b) Consider the following set of processes. The time quantum is 5 seconds :

<u>Process</u>	<u>CPU</u> <u>Burst time (in ms)</u>
P <sub>1</sub>	30
P <sub>2</sub>	6
P <sub>3</sub>	8

- (i) Draw the Gantt chart illustrating the execution of these processes using Round-Robin (RR) algorithm. 2
- (ii) Find the average waiting time and turn-around time. 3

**Group—B***(Database Management System)*

Answer any *two* questions.  $2 \times 12 \frac{1}{2}$

5. (a) What is DBMS? Write the advantage of DBMS.

$2 + 2 \frac{1}{2}$

(b) Write a short note on the roles of a DBA. 3

(c) Define primary key with example. Differentiate primary key and candidate key with example.

$2 \frac{1}{2} + 2 \frac{1}{2}$

6. (a) What is data abstraction? Describe the three level architecture of data abstraction.  $2 + 4 \frac{1}{2}$

(b) List the components of E-R diagram with symbols. 3

(c) Differentiate between strong and weak entity with example. 3

7. (a) Define Generalization with an example. 3

(b) Explain Indexed segmental file system. 3

(c) What is normalization ? What is the necessity of it ?

1+2

(d) What is 3NF ? Explain with example.

$3\frac{1}{2}$

**8. Consider the Relation**

emp (e\_no, e\_name, e\_sal, d\_no, d\_name, Job\_status).

Write the following queries in SQL or relational algebra.

(i) Display the employee name who get the minimum salary.

(ii) Display all information about employees where the 2nd character of names are either 'p' or 's'.

(iii) Print all employee information of emp\_id 004.

(iv) Print all information of employee whose d\_no 111 and d\_name 'Computer science'.

(v) Print all information of job-status 'Lecturer'.

$2\frac{1}{2} \times 5$

*Internal Assessment : 5*

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