

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI  
 FIRST SEMESTER 2023-2024  
**PHA G616: Pharmaceutical Administration & Management**  
 MID-TERM EXAMINATION

Date: 13/10/23  
 Maximum marks: 30

CLOSED BOOK  
 Duration: 90 min

**Attempt all questions in the sequence as given in the question paper.  
 Attempt all parts of a question together.**

1. Justify the following statements: [6M]

- a) Allocation of overheads as percentage of labor hour rate
- b) Scale-up is easy and fast in continuous manufacturing
- c) If both critical and non-critical activities are equally important for project completion, then why named so.
- d) All demands for the product are considered satisfied in EBQ model

2. Explain the concept Line of Balance technique in production management using any suitable example of your choice. Using the chosen example, construct the objective chart, program chart and LOB bar diagram. You can assume any data required for the same. [5 M]

3. Strut Ltd. is an equipment manufacturing firm engaged in production of tableting machines. The monthly sales of tablet compression machines are shown in the table. Forecast the sales for the month of January of next year using each of the following methods: [0.5+2.5+1 M]

Month	No. of tableting machines sold
June	91
July	98
Aug	83
September	85
October	48
November	59
December	87

- a) A 5-month moving average
- b) Exponential smoothening with smoothening constant equal to 0.5 and calculate September forecast by historic method.
- c) A weighted average using weights equal to 0.6 for December, 0.2 for November and 0.2 for October.

4. Using the following data, determine each of the following performance measures: [0.5+1+1.5+1 M]

<ul style="list-style-type: none"> <li>a. Makespan</li> <li>b. Average flow time</li> <li>c. Average tardiness</li> <li>d. Average number of jobs at the workstation</li> </ul>	<table style="width: 100%; border-collapse: collapse; margin: 0 auto;"> <thead> <tr> <th style="border: none; padding: 5px;">Jobs</th> <th style="border: none; padding: 5px;">Job time (h)</th> <th style="border: none; padding: 5px;">Due date (h)</th> </tr> </thead> <tbody> <tr> <td style="border: none; padding: 5px;">A</td> <td style="border: none; padding: 5px;">23</td> <td style="border: none; padding: 5px;">34</td> </tr> <tr> <td style="border: none; padding: 5px;">B</td> <td style="border: none; padding: 5px;">19</td> <td style="border: none; padding: 5px;">35</td> </tr> <tr> <td style="border: none; padding: 5px;">C</td> <td style="border: none; padding: 5px;">5</td> <td style="border: none; padding: 5px;">38</td> </tr> <tr> <td style="border: none; padding: 5px;">D</td> <td style="border: none; padding: 5px;">17</td> <td style="border: none; padding: 5px;">51</td> </tr> <tr> <td style="border: none; padding: 5px;">E</td> <td style="border: none; padding: 5px;">35</td> <td style="border: none; padding: 5px;">93</td> </tr> </tbody> </table>	Jobs	Job time (h)	Due date (h)	A	23	34	B	19	35	C	5	38	D	17	51	E	35	93
Jobs	Job time (h)	Due date (h)																	
A	23	34																	
B	19	35																	
C	5	38																	
D	17	51																	
E	35	93																	

5. Crash the project activities to reduce the project duration to 15 days and determine the cost of completing the project in 15 days. [5 M]

Activity	Time (days)		Cost (Rs)	
	Normal	Crash	Normal	Crash
1-2	6	4	600	1000
1-3	4	2	600	1400
2-4	5	3	500	1500
2-5	3	1	450	650
3-4	6	4	900	2000
4-6	8	4	800	3000
5-6	4	2	400	1000
6-7	3	2	450	800

6. A roller mixer granulator was purchased for Rs. 55,000 and its life is estimated as 09 years and scrap value of Rs. 6000. Using reducing balance method, calculate depreciation rate. Also calculate depreciation after 4 years. [3 M]

7. Differentiate between P and Q models of inventory management graphically. [3 M]

XXXXXXXXXXXX