

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Winter 2019 - 20 Examination

Semester: 5**Subject Code: 03109305****Subject Name: Industrial Engineering and Project Management****Date: 05/12/2019****Time: 10:30 am to 1:00 pm****Total Marks: 60****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (Each of one mark)**(15)****(A) Fill in the Blanks**

1. Therbligs was invented by _____
2. PERT is abbreviation of _____.
3. For Food industry _____ layout is suitable.
4. _____, is a Production System or methodology aimed primarily at reducing times within production system by adopting the concept of right time, right place and right quantity.
5. _____ symbol is used to show the transport in Flow Process Chart.

(B) Answer in One word/Sentence.

6. What is the purpose of quality audit?
7. Define Inspection.
8. What do you mean by Bill of Material?
9. Write any two reasons of lower productivity.
10. Write the name of any two material handling equipment.

(C) Tick the correct answer.

11. Which one of the following chart gives simultaneously information about the progress of work and machine loading

- | | |
|-----------------------------|----------------------------|
| a. Two-handed Process Chart | b. Multiple Activity Chart |
| c. Operation Process Chart | d. Man Machine Chart |

12. The process time for five jobs are given in following table.

Job	1	2	3	4	5	6
Process Time	34	42	28	27	56	21

Which of the following is the correct job sequence according to SPT rule?

- | | |
|----------------|----------------|
| a. 6-5-4-3-2-1 | b. 6-4-2-5-3-1 |
| c. 6-4-3-1-2-5 | d. 1-2-3-4-5-6 |

13. Job evaluation is the method of determining the

- | | |
|-----------------------------|----------------------------------|
| a. relative values of a job | b. worker's performance on a job |
| c. worth of the machine | d. value of overall production |

14. The full form of CPM is

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|----------------------------------|-----------------------------------|
| a. Critical Project Method | b. Critical Path Method |
| c. Continuous Project Management | d. Continuous Program Methodology |

15. Work study is concerned with

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|---|--|
| a. Improving present method and finding standard time | b. Motivation of workers |
| c. Improving production capability | d. Improving production planning and control |

Q.2 Answer the following questions. (Attempt any three)**(15)**

- A) Write a short note on Flow Process Chart.
- B) Explain normal and maximum working area in context of ergonomics.
- C) List out the characteristics of good wage plan.

D) There are seven jobs which are to be processed first on M1 and then on M2. Processing time in hours is as under.

Job	A	B	C	D	E	F	G
M1	6	24	30	12	20	22	18
M2	16	20	20	13	24	2	6

Find optimal sequence, total time elapsed and idle time of Machine M2.

- Q.3** A) The following data gives the sales of the company for various years. By the method of linear regression forecast the sales for year 2018 and 2019. (07)

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
Sales (in 1000)	13	20	20	28	30	32	33	38	43

- B) The outcome of one workstation of machine shop is examined. The following table shows the observation at regular interval of one hour. Draw X bar and R chart and conclude on the acceptance of the process. Take the values of $A_2 = 0.577$, $D_4 = 2.114$ and $D_3 = 0$. (08)

Hour	1	2	3	4	5	6	7	8
Obs 1	4.5	4.6	4.6	4.4	4.3	4.6	4.1	4.5
Obs 2	4.6	4.5	4.1	4.3	4.3	4.6	4.3	4.5
Obs 3	4.5	4.4	4.4	4.4	4.4	4.2	4.6	4.4
Obs 4	4.4	4.3	4.4	4.2	4.2	4.5	4.5	4.6
Obs 5	4.4	4.1	4.1	4.3	4.3	4.5	4.2	4.4

OR

- B) Write the detail note on Industrial Depute act 1947. (08)

- Q.4** A) (i) Differentiate 100% inspection and sampling technique. (07)
 (ii) Explain double sampling plan in detail.

OR

- A) Write the procedure to find out the Critical Path of a network diagram (07)
 B) Describe the criteria for selection of site for plant location. (08)