

**KADI SARVA VISHWAVIDHYALAYA**  
**B.E. MECHANICAL Semester-V NOVEMBER 2016**

**Subject: Industrial Engineering**  
**Subject Code: ME-504**

**Date: 17/11/2016**  
**Time: 10:30 am to 01:30 pm**  
**Total Marks: 70**

**Instructions:**

1. Answer each section in separate Answer sheet.
2. Use of Scientific calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

**SECTION-I**

- Que:1** (A) What do you know about Special Economic Zone and explain its objectives. [5]
- (B) Write short note on choice of site for location. [5]
- (C) Explain Types of Plant Layout in details. [5]

**OR**

- (C) What is PPC? Give the major objectives of the same. [5]
- Que:2** (A) Explain the relationship between "Production Planning" and "Control". [5]
- (B) Differentiate between Job order production and batch order production system. [5]

**OR**

- (A) What is sales forecasting? State its advantages. [5]
- (B) The sale of a product during last five years is tabulated below:

Year	2006	2007	2008	2009	2010
Sale	4	8	6	10	14

[5]

Find: (a) equation of best fit line. (b) Forecast the sale in the year 2011.

- Que:3** (A) What is productivity? Explain in brief the factors which affect productivity. [5]
- (B) Write in brief about loading and scheduling. [5]

**OR**

- (A) State objectives of work study. [5]
- (B) What is method study? Explain objectives of method study. [5]

**SECTION-II**

- Que:4** (A) Write short note about qualified worker. [5]
- (B) Define Job evaluation. Discuss the objectives of job [5]
- (C) Write short note on Observed time and Standard time. [5]

**OR**

- (C) Write short note on: 1. Job Analysis 2. Job Description [5]



Que:5 (A) Discuss the advantages and disadvantages of merit rating. [5]

(B) What is incentive? State objectives of incentives. [5]

OR

(A) What is difference between "Strike" and "Lock out"? [5]

(B) Explain objectives of industrial legislation. [5]

Que:6 (A) Define Total Quality Management (TQM) [5]

(B) Define Entrepreneur and Entrepreneurship. [5]

OR

(A) What do you understand by inspection? What are its objectives? [5]

(B) Discuss about short term finance and long term finance. [5]

Best of luck



# KADI SARVA VISHWAVIDYALAYA

B.E SEMESTER 5<sup>th</sup> EXAMINATION (NOVEMBER / 2015)

SUBJECT CODE: ME-504

SUBJECT NAME: INDUSTRIAL ENGINEERING

DATE: 26/11/2015

TIME: 10:30 am to 1:30 pm

TOTAL MARKS: 70

## Instruction:

1. Answer each section in separate Answer Sheet.
2. Use of scientific Calculator is permitted.
3. All questions are compulsory.
4. Indicate **clearly**, the options you attempted along with its respective question number.
5. Use the last page of main supplementary for rough work.

## SECTION-I

- Que:1 (A) Define Plant Layout. Discuss Product layout. [5]  
(B) Write short note on Special Economic Zone (SEZ). [5]  
(C) Write short note on Product Design and Development. [5]

OR

- (C) What is PPC. State the major objectives of PPC. [5]  
Que:2 (A) What is sales forecasting? Explain exponential smoothing method. [5]  
(B) Write short note on String diagram. [5]

OR

- (A) What is Productivity? Discuss various reasons which leads to increase or decrease productivity. [5]  
(B) Write short note on Line Balancing. [5]  
Que:3 (A) For the following given data, calculate forecast for using  $\alpha = 0.3$  [5]

Month	1	2	3	4	5	6	7	8	9	10
Actual Demand	10	12	8	11	9	10	15	14	16	15

- (B) Find the sequence that minimizes the total elapsed time to complete the following jobs. Determine elapsed time also. [5]

Machines	Jobs (Processing time in minutes)							
		1	2	3	4	5	6	7
	A	12	6	5	11	5	7	6
	B	7	8	9	4	7	8	3

OR

- (A) The elemental times (in minutes) for 4 cycles of an operation using a stop watch are as follow: [5]

Elements	Cycle time in minutes			
	1	2	3	4
1	1.5	1.5	1.3	1.4
2	2.6	2.7	2.4	2.6
3	3.3	3.2	3.4	3.4
4	1.2	1.2	1.1	1.2
5	0.51	0.51	0.52	0.49

Calculate standard time for the operation if Element 2 and 4 are machine element and for other elements the operator is rated at 110% and allowances are 15% of normal time.

- (B) Following are the observations of bulb manufacturing company for the 12 days. Draw the P chart and express opinion for the process based on the chart. [5]

Days	1	2	3	4	5	6	7	8	9	10	11	12
No. of Inspected bulbs (n)	59	102	48	130	78	65	80	96	110	145	68	86
No. of Defective bulbs (d)	4	12	6	18	8	7	6	1	3	37	8	5

## SECTION-II

- Que:4 (A) What do you mean by Job Evaluation? Explain any two methods for Job Evaluation. [5]

- (B) Write short note on Factories Act, 1948. [5]

- (C) Explain OC curve in detail. [5]

OR

- (C) Write characteristics of an Entrepreneur. [5]

- Que:5 (A) Define following term: [5]

(1) Quality Control (2) Quality Assurance (3) Quality Audit (4) Reliability (5) Inspection

- (B) Explain Control Charts for Attributes in detail. [5]

OR

- (A) State various government incentives to entrepreneurs. [5]

- (B) Calculate the earnings of a worker under Halsey Plan and Rowan Plan. The relevant data is given as: Time rate = Rs. 0.60/hrs. Time allowed = 8 hrs. Time taken = 6 hrs. Time saved = 2 hrs. [5]


- Que:6 (A) What is work measurement? List various techniques of work measurement and explain any one in detail. [5]

- (B) Explain Halsey Incentive Plans and Taylor's piece rate plans. [5]

OR

- (A) Explain Sampling Plans in brief. [5]

- (B) Explain the workman's compensation Act, 1923. [5]

ALL THE BEST... 



ID No.: \_\_\_\_\_

Enrollment No.: \_\_\_\_\_

Dt: 20/11/14

**Kadi Sarva Vishwavidyalaya**  
**Mechanical Engineering**  
**B. E. 5<sup>th</sup> Semester Final Examination 2014**

Subject: Industrial Engineering ME 504

Total Marks: 70

Time: 10:30AM – 1:30PM

Date: 20/11/2014

**Instructions:**

1. Attempt all questions as directed and answer each section in separate main answer sheets.
2. Figures to the right indicate full marks.
3. Make suitable assumptions.
4. Please don't carry any type of Communication Gadgets, Programmable Calculators, etc., with you during the examination except Scientific Calculators.
5. Please don't write anything on this question paper except your Enrollment and ID Number.
6. Please keep your Identity Cards and Hall Tickets on your desk during the examination.
7. Please follow all the instructions provided by authorized university and institute personnel.

**Section – I**

**Q. 1**

**Total: 15**

- A. List the factors affecting plant location and explain them in brief. Also, explain in short the "SEZ – Special Economic Zone". 5
- B. Explain any five from the list given below: 5
1. Routing
  2. Scheduling
  3. Dispatching
  4. Route Sheet
  5. Line Balancing
  6. Machine Loading
- C. Define the plant layout and explain in details product layout and process layout. 5

**OR**

- C. Name the types of production systems and write the short notes on standardization and simplification. 5

**Q. 2**

**Total: 10**

- A. Discuss the exponential smoothening and weighted moving average methods of sales forecasting. 5
- B. The following series relates to the annual sales in thousands of a product during the period of 1985-2000. Find the trend of sales using 5
- (i) 2 year moving averages



(ii) 3year moving averages

Year	Sales in thousands	Year	Sales in thousands
1985	17	1993	26
1986	19	1994	29
1987	16	1995	27
1988	18	1996	23
1989	21	1997	29
1990	23	1998	25
1991	26	1999	26
1992	25	2000	31

OR

Q. 2

Total: 10

- A. Explain the PPC along with different phases and major objectives. 5
- B. The demand of the product for last 10 years is given below. Estimate the demand for the next two years by the method of least square. 5

Year	1	2	3	4	5	6	7	8	9	10
Units	125	136	146	151	168	158	162	171	188	169

Q. 3

Total: 10

- A. Explain the productivity along with the ways to improve productivity with suitable examples. 5
- B. Calculate the normal time and standard time for each element of the job from details given below: 5

Element	Observed time	Rating	Relaxation allowance in %
A	10	95	8
B	8	105	14
C	6	110	12
D	25	120	5
E	16	110	10

Also, compare PMTS-MTM System and W-F system.

OR

Q. 3

Total: 10

- A. Explain flow diagram, string diagram, SIMO chart and two handed process chart in detail. 5
- B. 1. Explain motion study and work measurement with objectives in detail. 5
2. Explain the terms below with suitable example:
- Micro and macro motion study
  - Performance rating
  - Normal and standard time



- d. Predetermined elemental time standards
- e. Concept of work sampling

**Section – II**

<b><u>Q. 4</u></b>		<b><u>Total: 15</u></b>
<b>A.</b>	Explain steps involved in point rating method of job evaluation.	5
<b>B.</b>	Explain any two from the list given below:	5
	1. Method of merit rating	
	2. Job evaluation system	
	3. Different types of incentives	
<b>C.</b>	Explain in detail the nominal wages, real wages, minimum wages, fair wages and living wages.	5
	<b>OR</b>	
<b>C.</b>	Describe Taylor's differential piece rate system in detail.	5
<b><u>Q. 5</u></b>		<b><u>Total: 10</u></b>
<b>A.</b>	Explain workman's compensation act, 1923 in detail.	5
<b>B.</b>	Explain works committee and conciliation officers and board of conciliation with respect to industrial dispute act.	5
	<b>OR</b>	
<b><u>Q. 5</u></b>		<b><u>Total: 10</u></b>
<b>A.</b>	What are factories acts? As per factories act 1948, what are the major provisions of safety and health?	5
<b>B.</b>	Explain the necessity of industrial acts with suitable examples.	5
<b><u>Q. 6</u></b>		<b><u>Total: 10</u></b>
<b>A.</b>	Provide the significance of X and R charts as they are drawn for the job. Also, list the applications of P-chart and C-chart.	5
<b>B.</b>	Write a short note on entrepreneurship and project techno-economic feasibility assessment.	5
	<b>OR</b>	
<b><u>Q. 6</u></b>		<b><u>Total: 10</u></b>
<b>A.</b>	Define statistical quality control. Discuss practical devices used as tool of statistical control in factories.	5
<b>B.</b>	Explain the concept of entrepreneur and enterprise with factors affecting entrepreneurship.	5

**Our best wishes are always with you...**