

## Eighth Semester B.E. Degree Examination, June/July 2016

### Operations Management

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.**

#### PART – A

1. a. Define operation management. Draw the operations management system showing input and output model for an international airport. (06 Marks)
- b. Briefly explain how service producers differ from goods producers in important aspects of their operations. (06 Marks)
- c. With neat schematic sketch, explain the frame work for managing operations. (08 Marks)
2. a. Define decision making. Explain the frame work for decision making. (06 Marks)
- b. Two assembly robots X and Y working at the same rate together produce 400 filters per day. During a recent day, 40 filters were found defective, given that the filter is defective, there is 0.40 probability it was produced by robot X (i.e.,  $P_{X/D} = 0.40$ ). What is the probability that a filter selected at random is : i) Defective ii) Produced by robot Y iii) Defective and produced by robot X iv) Defective or produced by robot X. (04 Marks)
- c. Define BEP. Briefly explain the various methods of lowering the breakeven point. (10 Marks)
3. a. Briefly explain the following : i) Time series forecasting ii) Forecasting error and tracking signal. (10 Marks)
- b. The following table gives the annual shipment (tons) of welded tube by an aluminum producer to machinery manufacturers :

| Year            | 2004 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 2014 |
|-----------------|------|----|----|----|----|----|----|----|----|----|------|
| Shipment (tons) | 2    | 3  | 6  | 10 | 8  | 7  | 12 | 14 | 14 | 18 | 19   |

Use the least square method to develop a linear trend equation for the data given, state the equation and forecast the shipment for 2015. (10 Marks)

4. a. Define capacity planning. Explain long-terms and short-terms capacity strategies. (05 Marks)
- b. The individual component capacities (in units/day) for an assembly line that consists of five activities are shown in the figure below Fig. Q4(b). (05 Marks)

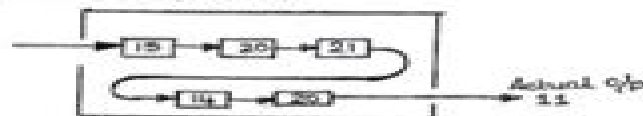


Fig. Q4(b)

- i) What is the system capacity?
- ii) What is the efficiency of the system?
- c. Annual demand for a manufacturing organization capacity is expected to be as follow :

| Unit demanded | 8000 | 10000 | 15000 | 20000 |
|---------------|------|-------|-------|-------|
| Probability   | 0.5  | 0.2   | 0.2   | 0.1   |

Revenues are ₹35/unit. The existing manufacturing facility has annual fixed cost/operation are ₹2 lakhs. Variable manufacturing cost are ₹7.75/unit, ₹5/unit, ₹5.33/unit & ₹7.42/unit at the 8000, 10000, 15000 and 20000 unit output level respectively. An expanded facility under consideration would require ₹2,50,000 fixed operating cost annually. Variable cost are ₹9.4/unit, ₹5.2/unit, ₹3.8/unit and ₹4.9/unit at the 8000, 10000, 15000, 20000 unit output level receptively. In order to maximize the earnings which size facility should be selected?

(10 Marks)

# Sample Question Paper Third Semester Mechanical

**Sadhu Singh**



### **Sample Question Paper Third Semester Mechanical:**

*Sample Question Papers for ISC Science Stream Class 12 Semester I Exam 2021* Oswal - Gurukul, 2021-10-04 Prepare Well Perform Outstandingly with Oswal Gurukul Science Stream Sample Question Papers for ISC 12th Class Semester 1 Examination 2021 This Practice Book includes Science Subject test papers combined together such as English I II Mathematics Computer Science Physics Chemistry Biology Physical Education How can you benefit from Oswal Gurukul ISC Science Sample Papers for 12th Class Our Sample Question Handbook Includes subject wise question papers strictly based on the Modified Assessment Plan issued by the board on 6th August 2021 1 Strictly based on the Reduced Syllabus prescribed by council in July 2 Entire Syllabus covered for Semester 1 Exam 3 Fully Solved Questions based on New Specimen Question Paper Pattern given in Aug Sept 2021 4 All Science Stream Subjects Combined in One Book 5 Well explained Expert Answers for Better Understanding 6 Focused on Topics most likely to be asked in Boards *Mechanical System Design* Anup Goel, 2020-12-01 In machine design or design of machine elements we study about the design of individual components of machinery like shafts keys belts bolts gears etc In mechanical system design we mean that how these components are going to work in collaboration reliability of the system when different components work together This book includes design of conveyors for material handling systems belt conveyors design of multispeed gearbox for machine tools design of I C engine components and optimum design It also includes the design of pressure vessels used in mechanical systems This book provides a systematic exposition of the basic concepts and techniques involved in design of mechanical systems Our hope is that this book through its careful explanations of concepts practical examples and figures bridges the gap between knowledge and proper application of that knowledge *Material Science and Metallurgy* Anup Goel, 2021-01-01 A material is that from which anything can be made It includes wide range of metals and non metals that are used to form finished product The knowledge of materials and their properties is of great significance for a design engineer Material science is the study of the structure properties relationship of engineering materials such as ferrous non ferrous materials polymers ceramics composites and some advanced materials Metallurgy is the study of metals related to their extraction from ore refining production of alloys along with their properties The study of material science and metallurgy links the science of metals to the industries Also this helps in completing demands from new applications and severe service requirements

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machines At the same time industrial safety standards require better vibration isolation This book covers balancing of mechanisms torsion vibrations vibration isolation and the dynamic behaviour of drives and machine frames as complex systems Typical dynamic effects such as the gyroscopic effect damping and absorption shocks are explained using practical examples The substantial benefit of this dynamics of machinery lies in the combination of theory and practical applications and the numerous descriptive examples based on practical data Our hope is that this book through its careful explanations of concepts practical examples and figures bridges the gap between knowledge and proper application of that knowledge

Principles of Mechanical Engineering (MDU) Sadhu Singh,2010 For the students of B E B Tech of Maharshi Dayanand University MDU Rohtak and Kurukshetra University Kurukshetra The book contains a large no of solved and unsolved problems This has been supplemented with Multichoice questions review questions true and false and fill in the blanks type of questions **Score-well ICSE Model Test Papers Physics Class 10** Maninder kaur,2025-08-27 The Score Well ICSE Model Test Papers for Class 10 Physics is a structured exam practice resource built to improve problem solving skills and exam readiness It provides full length model papers aligned with the ICSE specimen pattern covering all topics Force Machines Light Sound Electricity Magnetism and Modern Physics Each paper comes with fully solved answers examiner notes and numerical solving strategies ensuring precision and clarity Timed practice boosts speed and confidence while marking schemes and common error alerts guide students towards perfect exam presentation This book is ideal for achieving high scores in ICSE Physics board examinations **B.Sc. Sem.3 & 4 and 2nd year Chemistry old question papers** PRAHSIDDH Educare,2024-06-05 Examination conducted by Bhavnagar University like B Sc Chemistry There is a set of old question papers of semester 2 and 3 as well as second year **Score-well ICSE Model Test Papers Biology Class 10** Priya Minhas,2025-08-27 The Score Well ICSE Model Test Papers for Class 10 Biology is an exam focused practice resource crafted to enhance conceptual clarity speed and confidence Covering the complete syllabus including Cell Biology Genetics Plant and Human Physiology Health and Environment it presents a variety of model papers designed in line with the latest ICSE specimen format Solved answers step by step explanations and examiner tips guide students in handling structured diagram based and reasoning questions with precision Timed practice with these sets ensures stronger recall improved presentation and excellent performance in ICSE Biology board exams **Elements Of Civil & Mechanical Engineeri** L S Jayagopal, This book presents the fundamentals of Civil and Mechanical Engineering Designed as per the revised and new core engineering paper of Basic Engineering I this book is written in a style suitable for students just out of school

*Goyal's I.C.S.E Physics Question Bank With Model Test Papers For Class X Edition 2021* Goyal Brothers Prakashan,2021-09-01 CISCE s Modified Assessment Plan for Academic Year 2021 22 Reduced and Bifurcated Syllabus for First Semester Examination Chapterwise Important Points Chapter wise Multiple Choice Questions Specimen Question Paper issued by the CISCE 5 Model Test Papers based on the latest specimen question paper for First Semester Examination to be

held in November 2021 Goyal Brothers Prakashan      Operation Research Anup Goel,Ruchi Agarwal,2021-01-01 Operations research is the fast developing branch of science which deals with the most of the engineering activities It consist of many models which are used to obtain the optimum solution for different activities Operations research is a procedure which is executed iteratively for comparing various solutions till the optimum or satisfactory solution is obtained An important aspect of the optimal design process is the formulation of the problem in a mathematical format which is acceptable to an algorithm and thus find out the optimal solution These techniques are extensively used in those engineering design problem where the emphasis is on maximising or minimising a certain goal This book is the introduction to the different techniques in operations research The subject does not require a high level of mathematical knowledge Each chapter of the book have examples from variety of fields Our hope is that this book through its careful explanations of concepts practical examples and techniques bridges the gap between knowledge and proper application of that knowledge      Metal Cutting and Forming Anup Goel,2020-12-01 Metal cutting is the process of removing unwanted material in the form of chips from a block of metal using cutting tools Metal cutting is performed on lathe machine milling machine drilling machine shaper planer and slotter Grinding is the commonly used finishing process Metal forming includes a large number of manufacturing processes in which plastic deformation property is used to change the shape and size of metal workpieces During the process for deformation purpose a tool is used which is called as die It applies stresses to the material to exceed the yield strength of the metal Due to this the metal deforms into the shape of the die Generally the stresses applied to deform the metal plastically are compressive Sheet metal working is generally associated with press machines and press working Press working is a chipless manufacturing process by which various components are produced form sheet metal      **Principles of Management: A textbook for university students** Kailas Sree Chandran,2020-01-01 This book includes all the basic topics of management required for any university It contain topics like Functions of management levels skills arts science scientific management motivation theories Theory X and Y CSR Ethics planning organisation structure decision making span of control selection process HRM leadership etc and other topics      **Manufacturing Technology - II** Anup Goel,2021-01-01 Manufacturing Technology II is a branch of mechanical engineering which extensively deals with the production of industrial goods with the help of advanced tools and machinery This subject gives information which covers the more practical knowledge than the theory It provides tool to enable production of manufacturing goods efficiently The subject gives idea to maximise product quality and to minimise the production cost It also gives information about the different surface finishing techniques My hope is that this book through its careful explanations of concepts practical examples and figures bridges the gap between knowledge and proper application of that knowledge      **Self-Help to ICSE Super 11(10+1) Revision Papers Physics For Class 10** Sunny Chhabra, Salient Features Reduced and Bifurcated Syllabus for Ist Semester Examination Chapter wise brief summary Chapter wise MCQs Most Expected for semester 1 examination Specimen Question paper issued by the CISCE

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