Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **18MS3052** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MANUFACTURING PLANNING AND CONTROL** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Explain the significance of Manufacturing Planning and Control. | CO1 | 10 |
| b. | Illustrate the type of production is suitable for manufacturing various ranges of motors in an industry. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Define forecasting? Is it necessary in production function? | CO1 | 10 |
| b. | The details of sales turnover of a cement company for the period 2004-2010 are given in the following table. Compute the estimated sales for the year 2011.   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Year | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | | Sales (in crores) | 30 | 40 | 55 | 68 | 95 | 90 | 120 | | CO1 | 10 |
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| 3. | a. | List the function of Master Production Schedule and explain. | CO2 | 10 |
| b. | Briefly discuss different phases of Production Planning and Control. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | A bill of material is desired for a bracket (Z 100) that is made up of a base (A 10),two springs (B 11) and four clamps (C 20). The basis assembled from one clamp (C 20) and two housings (D 21). Each clamp has one handle (E 30) and each housing has two bearings (F 31) and one shaft (G 32).  Design a product structure tree that includes the level coding information and show the data in the form of an indented bill of material. | CO2 | 10 |
| b. | Discuss the role of Master Production Schedule (MPS), Material Requirement Planning (MRP) and Capacity Requirement Planning (CRP) in resource requirement Planning. | CO2 | 10 |
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| 5. | a. | Explain the Inventory Control? Mention its main objectives. | CO2 | 10 |
| b. | Compare and contrast Fixed Order Quantity (Q) Inventory system with Fixed Order Period (P) inventory system. | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | What is Work-In-Progress (WIP) inventory? How are they created? What measures would you suggest to reduce WIP inventories? | CO2 | 10 |
| b. | The store of an oil engine repair shop has 10 items whose details are shown in the following table. Apply ABC analysis to the store.   |  |  |  |  | | --- | --- | --- | --- | | Component Code | Description | Price/Unit (Rs.) | Units/year | | C01  C02  C03  C04  C05  C06  C07  C08  C09  C10 | Packing thread  Tower bolt  Hexagonal nut  Bush  Coupling  Bearing (Big)  Bearing (Small)  Fuel Pump  Fixture  Drill bit | 100  200  50  300  500  3000  1000  7000  5000  60 | 100  300  700  400  1000  30  100  500  105  1000 | | CO2 | 10 |
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| 7. | a. | Outline the fundamental concepts of JIT. | CO3 | 10 |
| b. | Explain in detail about KANBAN system with schematic diagram and its uses. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Distinguish between forward scheduling and backward scheduling. | CO3 | 10 |
| b. | Consider the following 3 machines and 5 jobs flow shop problem   |  |  |  |  | | --- | --- | --- | --- | | Job | Processing Time | | | | Machine 1 | Machine 2 | Machine 3 | | 1  2  3  4  5 | 8  10  6  7  11 | 5  6  2  3  4 | 4  9  8  6  5 |   Find the makespan for this problem and idle time for the machine 2 & 3 and draw the Gantt chart for the same. | CO3 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. |  | Case Study  Production managers are involved in many diverse areas  Products can be classified in many ways and their distribution can take many forms. But the essence of *production management* is that the factors of production—land, labor, and capital— are transformed by management from raw materials into something finished, something to be used, or something to be sold profitably in order to keep the business in operation.  Before production can be started, the firm must determine what kind of product it can profitably produce. Management must decide what markets the product will satisfy, what materials it will contain, what processes will be required to form it, by what means it can be transported, and what quality and quantity of labor will be needed to produce it. Knowledge of all this provides direction to the planning and organization of manufacturing.  Once the firm has decided on the basic product or service to produce, design and development can begin. Planning the product involves all parts of the business system. The marketing department may discover the need for a new or improved product, and the production department may then determine whether it can manufacture the product for sale at a given price. The finance department then decides whether the venture will be profitable and whether financing is available to cover the costs of development, manufacturing, and distribution. Such product planning determines whether development and design will go forward.  The process of refining a product to a finished form sheds further light on the problems of manufacture: the equipment, raw materials, and fabricated parts that will be required, as well as the flow of production. Planning for production actually starts as soon as the decision is made to develop and design a product.  Production management makes suggestions for manufacturing that will save time, effort, and money without impairing the design of the product. Production management is very complex. Decisions must be made about labors, money, machinery, and materials. Inventories of parts must be maintained, and proper machinery and equipment must be combined with labor. All these activities, although performed within the production system, must be closely coordinated with the overall system of the firm. |  |  |
|  |  | Discuss the importance of a production manager in an organization | CO2 | 20 |