



DR. B. R. AMBEDKAR OPEN UNIVERSITY
ROAD NO. 46, JUBILEE HILLS, HYDERABAD – 500 033

Dear Student,

We are enclosing two assignments in each course, for all the six courses of **Second Semester** of first year **MBA Programme (Batch: 2020-21)**. Please note the following points while answering these assignments:

1. Writing and submitting these given 'Assignments' are compulsory for the students of MBA Programme. They have a weightage of 30% in each course.
2. You have to submit both the assignments compulsorily. You will not be allowed to appear for the year-end examinations of any course, unless you submit the specified number of assignments in time, for that course.
3. Each assignment carries a maximum of 15 marks and you have to score a minimum of 40% marks, i.e., 6 out of 15, to qualify in that assignment. If you fail to score the minimum marks in any assignment, you have to necessarily resubmit that particular uncleared assignment along with the regular/current batch. Repetition of the same assignment will in no case be allowed.
4. The maximum marks for each course at the semester-end examination are 70 and you have to score a minimum of 40% marks, i.e., 28 out of 70 marks.
5. Division will be awarded on the basis of the aggregate marks obtained in assignments as well as in the semester-end examinations.
6. Dates of submission for the assignments are:

All the Six Courses

FIRST AND SECOND ASSIGNMENTS:

15.12.2021

ASSIGNMENTS SUBMITTED AFTER THE DUE DATE WILL NOT BE ACCEPTED.

7. If, under unavoidable circumstances, you fail to submit the assignments within the stipulated time, your results will be declared only after the submission and evaluation of all the assignments.
8. If any student fails to submit all the assignments within the stipulated time, he/she has to answer the set of assignments that are sent to the batch in currency/progress at that time.
9. **Keeping in view the pandemic situation and conduct of online classes to the students, as a onetime measure, you are requested to submit your assignments in the University Headquarters. You are requested to submit your assignments either in**

person or through registered post / courier on or before the due date (i.e., 15.12.2021) to the address given below:

**The Head, Department of Business Management
Dr. B. R. Ambedkar Open University
Road No. 46, Jubilee Hills
Hyderabad – 500004 (Telangana State)
Ph: 040-23680440**

Note: Submission of assignments at the Study Centre will not be accepted for this Semester (i.e., 2020-21 Batch II Semester students) as a onetime measure only.

10. The first page of your response sheet should be in the following format.

Student Enrolment No. :
Name of the Student :
Address :
Mobile No. :
E-mail Id. :
Name of the Programme :
Course Code & Title :
Assignment No. :
Study Centre (Name & Code) :
Date of Submission :
Signature of the Student :

11. Please go through the relevant course units thoroughly before answering your assignments.
12. In case the assignment is in figurative / problem & solution model, you have to answer it in the required / pertinent format. You should give working notes also wherever necessary.
13. Before submitting the assignments, check them carefully to make sure that you have attempted all the main points of all the questions.
14. You are required to use only foolscap paper for your responses. Allow some margin on the left, in order to facilitate the evaluator to record his comments.

15. You have to answer the assignments in your own words.
16. Do not copy from the response sheets of other students. If copying is noticed, the assignments of all such students will be rejected.
17. Start each assignment on separate sheets of paper.
18. You can consult your counsellors and get clarification on your doubts, if any, while answering the assignments.
19. The assignments should be neatly hand written. **Typed or Computerized assignments will not be accepted.**
20. You have to prepare your responses in duplicate, submit the original at your study centre and retain the second copy with yourself as a record.
21. You can collect back the evaluated assignments from your study centre, if you want.
22. In case you request for a change of study centre, you should submit your assignments only to the original study centre until the University gives effect to such request for change of study centre.
23. Further correspondence should be made to the following address:

**The Director (SSB)
Dr. B. R. Ambedkar Open University
Prof. G. Ram Reddy Marg,
Road No.46, Jubilee Hills,
Hyderabad – 500 033. T.S.**

Sd/-
HEAD
DEPARTMENT OF BUSINESS MANAGEMENT



DR. B.R. AMBEDKAR OPEN UNIVERSITY

**DEPARTMENT OF BUSINESS MANAGEMENT
MASTER OF BUSINESS ADMINISTRATION (MBA) PROGRAMME
(BATCH: 2020-21)**

COURSE - 201: ORGANIZATIONAL BEHAVIOUR

(SECOND SEMESTER)

ASSIGNMENT – I

(MARKS: 15)

ANSWER ALL QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

1. a) Define the concept of 'Organizational Behaviour'. Explain its key elements. Organizational Behaviour is treated as a multi-disciplinary subject - Why? Justify your answer.
b) Discuss the Models of Organizational Behaviour propounded by Keith Davis.
2. a) What do you understand by the term 'Personality'? Also write a note on Big Five Theory. How this theory is useful in explaining the personality of employees at workplace.
b) "Motivating is a universal function of management but the means to motivate differ from situation to situation" – Comment.
3. a) Explain the concepts of 'Attitude' and 'Work Attitude'. Also narrate the factors influencing the formation of attitudes. Give examples.
b) Define the term 'Group'. Discuss the relationship between Group Norms and Group Cohesiveness.

ASSIGNMENT – II

(MARKS: 15)

ANSWER ALL QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

1. a) Write a note on the following along with their role in resolving inter-personal conflict:
(i) Transactional Analysis & (ii) Johari Window.
b) Define 'Organizational Culture'. How does it form? Also examine how does training helps in internalizing organizational culture?
2. a) Present various models of change process in brief.
b) Explain the following concepts:
(i) Psychological Capital; (ii) Emotional Intelligence; and (iii) Spiritual Intelligence.

3. Analyze the following case-let and answer the questions asked at the end:

Bombay Printers is a large printing firm located in Mumbai. It was specialized in printing calendars and greeting cards. Right from inception, this concentration brought rich dividends and over the years sales have increased considerably, much to the envy of competitors. Slowly but steadily, it has captured a major share of the market. Since Bombay Printers is a family held company, exact figures are not readily available. Despite this statistical deficiency, competitors knew very well that Ramakant Patil and his children who own the company are extremely wealthy. The fact that the Patil foundation grants several lakhs of rupees every year to charitable institutions speaks volumes. Over the years the company has been investing its surplus funds in real estate and equity capital in a calculated manner. Supported by a vast reservoir of funds, it is a small wonder, the company has achieved a stupendous growth rate leaving everyone behind in the race.

Currently, Bombay Printers is the dominant employer in the printing industry. Though there is no union, employees are well-paid. The demand for calendars and greetings has increased considerably in the recent past and most of the employees receive a good overtime allowance. In an interview, given to a local magazine, Ramakant Patil proudly declared that “Workers in Bombay Printers are highly motivated. They are currently the highest-paid employees in the country. The future is rosy. Within a few days we are going to introduce a new productivity incentive plan under which employees are likely to get annual bonus based on a novel productivity formula devised by our accounting staff. We always want our employees to grow along with us”.

To his surprise and dismay, Ramakant Patil received a nasty letter, containing a long list of demands, from a group of anonymous employees – after the publication of the interview in the magazine. Among their complaints were the following:

- a) “We’re sick of this overtime. You and other officers in the company may like working day and night. We prefer the company of our families and friends to machines and tools during holidays”.
- b) “The new bonus plan is a hoax. None of us can understand how it operates. As usual, it will be those people who lick the boots of management that’ll benefit. Stop playing these dirty tricks. We hate working harder for something we don’t have any chance of getting”.
- c) “You are talking as if we’re one big happy family, and yet trying to throw us all on roads at the same time. Stop manipulating us. We know pretty well that the company has bought land in Delhi and you’re going to settle there only throwing us all out of work. Why should we care for a company that is abandoning us on streets”?

Questions:

1. Discuss the main problem in the case.
2. Critically analyse the perceptions of the management and the employees.
3. How does the company avoid the negative reactions?
4. If you are in the position of Mr. Patil, how would you proceed?



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COURSE – 202: FINANCIAL MANAGEMENT

(SECOND SEMESTER)

ASSIGNMENT – I

(MARKS: 15)

ANSWER ALL QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

1. a) What is 'Financial Forecasting'? Explain the importance and also the methods of financial forecasting.
- b) If ABC Company expects cash inflows from its investment proposal it has undertaken in time period zero, Rs.2,00,000 and Rs.1,50,000 for the first two years respectively and then expects annuity payment of Rs.1,00,000 for the next eight years, what would be the present value of cash inflows? Assume that the rate of interest is 10%.
2. a) A company requires an initial investment of Rs.40,000. The estimated net cash flow are as follows:

Year	1	2	3	4	5	6	7	8	9	10
Net Cash Flow	7000	7000	7000	7000	7000	8000	10000	15000	10000	4000

Using 10% as the cost of capital (rate of discount), determine: (i) Pay-Back Period; (ii) Net Present Value; and (iii) Internal Rate of Return.

- b) XYZ Company is considering an investment in one of the two mutually exclusive proposals:

Project – A: It requires initial outlay of Rs.1,70,000.

Project – B: It requires initial outlay of Rs.1,50,000.

The Certainty-Equivalent Approach is employed in evaluating risky investments. The current yield on treasury bills is 5% and the company uses this as riskless rate. Expected values of net cash inflows with their respective certainty-equivalents are:

Year	Project – A		Project – B	
	Cash Inflows (Rs.)	Certainty Equivalent	Cash Inflows (Rs.)	Certainty Equivalent
1	90000	0.8	90000	0.9
2	100000	0.7	90000	0.8
3	110000	0.5	100000	0.6

You are required to determine:

- (i) Which project should be acceptable to the company?
- (ii) Which project is riskier and why? Explain.
- (iii) If the company was to use the Risk-Adjusted Discount Rate Method, which project would be analyzed with higher rate?

3. a) A company has on its books the following amounts and specific costs of each type of capital:

Type of Capital	Book Value (Rs.)	Market Value (Rs.)	Specific Costs (%)
Debt	400000	380000	5
Preference	100000	180000	8
Equity	600000}		15
Retained Earnings	200000}	1200000 (for both Equity & RE)	13
	1300000	1690000	

Determine the Weighted Average Cost of Capital using: (i) Book Value Weights, and (ii) Market Value Weights. How are they different? Can you think of a situation where the Weighted Average Cost of Capital would be the same using either of the weights?

- b) What is 'Leverage'? Explain various types of leverages.

ASSIGNMENT – II

(MARKS: 15)

ANSWER ALL QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

1. a) Explain the concept of 'Dividend'. What do you understand by dividend decision? Discuss the factors which govern this decision.

- b) Determine the market value of equity shares of the company from the following information:

Earnings of the Company:	Rs.5,00,000
Dividend Paid:	3,00,000
Number of Shares Outstanding:	1,00,000
Price-Earning Ratio:	8
Rate of Return on Investment:	15%

Are you satisfied with the current dividend policy of the firm? If not, what should be the optimal dividend payout ratio? Use Walter's Model.

2. a) On 1st Jan 2009 the Board of Directors of X Limited desires to know the amount of working capital that will be required to meet the programme they have planned for the year. From the following information prepare the estimate of working capital requirements:

Production during the year 2008 was 80,000 units and it is proposed to maintain the same during 2009.

The expected ratio of cost to selling price is:

Raw Material:	60%
Direct Wages:	10%
Overheads:	20%

Following further information are available:

1. Raw materials are expected to remain in stores on an average 2 months before issue to production.
2. Each unit of production is expected to be in process for one month.
3. Finished goods will stay in the warehouse awaiting dispatch to customers for 3 months.
4. Credit allowed by creditors is 2 months from the date of delivery of raw materials.
5. Credit given to debtors is 3 months from the date of dispatch.
6. Selling price is Rs. 5 per unit.

There is regular production and sales cycle and wages and overheads accrue evenly.

- b) The Ganges Pump Company uses about 75000 valves per year and the usage is fairly constant at 6,250 per month. The valve costs Rs.1.50 per unit when bought in quantities and the carrying cost is estimated to be 20% of average inventory investment on an annual basis. The cost to place an order and process the delivery is Rs.18. It takes 45 days to receive delivery from the date of an order and a safety stock of 3,250 valves is desired.

You are required to determine:

- (i) The most EOQ and frequency of orders; (ii) The Order Point; and (iii) The most EOQ if the valves cost Rs.4.50 each instead of Rs. 1.50 each.

3. a) ABC Ltd. is launching a new project for the manufacture of a unique component. At full capacity of 24,000 units, the cost per unit will be as follows:

Material:	Rs.80
Labour and Variable Expenses:	40
Fixed Manufacturing and Administrative Expenses:	20
Depreciation:	10
	<u>150</u>

The selling price per unit is expected at Rs.200 and the selling expenses per unit will be Rs. 10, 80% being variable.

In the first two years, production and sales are expected to be as follows:

Year	Production Units	Sales Units
1	15000	14000
2	20000	18000

To assess working capital requirements, the following additional information is given:

- (i) Stock of raw material - 3 month's average consumption;
- (ii) Work-in-process - Nil;
- (iii) Debtors - 1 month average cost of sales;
- (iv) Creditors for supply of materials - 2 months average purchases of the year;
- (v) Creditors for expenses - 1 month average of all expenses during the year;
- (vi) Minimum desired cash balance - Rs.20000; and
- (vi) Stock of finished goods is taken at average cost.

Prepare a projected statement of working capital requirements for two years.

- b) Management of Talash Limited has the option to buy either Machine A or Machine B. A has a cost of Rs.75,000. Its expected life is 6 years with so salvage value at the end. It would generate net cash flows of Rs.20,000 per year. Machine B, on the other hand, cost Rs.50,000. Its expected life is 6 years with so salvage value at the end. It would generate net cash flows of Rs.15,000 per year. Assuming that the cost of capital both the machines is 10%, you are required to calculate:
- (i) Net Present Value for each machine;
 - (ii) Internal Rate of Return for each machine; and
 - (iii) Which machine should be recommended? Why?



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COURSE – 203: MARKETING MANAGEMENT

(SECOND SEMESTER)

ASSIGNMENT – I

(MARKS: 15)

ANSWER ALL QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

1. a) What is Marketing Mix? State the elements of marketing mix. Also examine the relationship between marketing mix and marketing strategy.
b) Define the concept of 'Customer Relationship Management'. Discuss the importance of CRM in the present environment. Also explain the limitations of CRM.
2. a) What do you mean by Market Segmentation? What are various bases of Market Segmentation? As a Marketing Manager of a company manufacturing variety of foot wares, how would you segment market for such products to be sold all over India?
b) Define 'Marketing Research'. Narrate the steps involved in marketing research process. A famous five-star hotel is planning to start fast food restaurants in major cities of the country. What are the various parameters the company should take into consideration while launching its restaurants?
3. a) Explain the influence of the external factors of environment on consumer behaviour with special reference to culture, social class, and family.
b) Write a note on: (i) Howard-Sheth Model of Consumer Behaviour; and (ii) Impact of Globalization on Indian Consumer Market.

ASSIGNMENT – II

(MARKS: 15)

ANSWER ALL QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

1. a) What do you mean by the term Product Life Cycle (PLC)? Explain the stages of PLC. Find out in which stage of PLC are the followed product in India, and suggest suitable marketing strategies for each:
(i) Wall Clocks & (ii) Wrist Watches.
b) Success or failure of several consumer products in Indian Market in the recent past was directly related to Pricing Decision” - Comment. Explain nature and importance of Pricing Decisions with suitable illustrations from Indian Consumer Market.

2. a) What is Integrated Marketing Communications? Explain in detail. Also discuss the reasons for increasing use of IMC.
 - b) State the types of channels of distribution. Examine the factors influence the selection of channels of distribution. Keeping in view the increase in the petrol / diesel prices in recent days, you are requested to study and suggest suitable channels of distribution for essential commodities without many fluctuations in their prices.
3. Analyze the following case-let and answer the questions asked at the end:

Mr. Sunil Mathur, Director, Raj Doors Pvt Ltd, was not sure what kind of marketing strategies, segment and target market he should use in order to achieve the company goals on sales and profitability. The sales and profits were not growing as per expectations of Mr. Mathur.

Sunil Mathur joined the family business in 2006 after completing graduation in Electronics Engineering and MBA from a reputed institution in India. The company manufactures and markets plastic doors (GTEX brand) for bedrooms, bathrooms, office rooms, balcony etc. These non-wood doors can be used for residential houses, institutions like schools, office, hospitals as well as commercial shops, malls etc.

The market for plastic doors was growing at the rate of 50% annum. Raj Door was having a market share of 14% in the year 2008. Kintex and Aptak were the leading players with market share approximately 28% and 20% respectively. Balance market was dominated by smaller players as well the players in the unorganized sector.

The market was overall dominated by wooden doors. The market was highly fragmented with no player commanding more than 4% of the market. Unorganized sector was the dominant player in the wooden door market.

Mr. Sunil has decided to make the company as market leader of the overall door market (both wooden and plastic) in the next ten years.

The company had segmented its market into the following segments: (a) government organizations like CPWD, Ministry of Defence, Railways etc.; (b) Residential house built by builders; (c) Commercial organizations and institutions; (d) Individual house owners built by individuals; (e) Fabricators. 'We have targeted all the above market segments for plastic doors, excepting those who want wooden doors' said Sunil Mathur. He further added that their sales personnel regularly contacted contractors who get business from government organizations, where lowest price and good after-sales-service are the key buying factors. However when sales personnel call on builders for residential and commercial complexes for getting orders, superior product quality and services are the most important factors that they have to keep in mind. For house owners and fabricators indirect channel of dealers are used. They mostly look for low prices and delivery service.

The company developed three sub-brands under GTEX brand. These are Solidex, Fibrex and Lightex. Solidex brand was suitable for government firms, institutions, individual houses with medium quality and medium to low prices. Fibrex brand with high quality was suitable for builders and a few individual house owners. Lightex brand offered lower quality and low prices for replacement market and a few individual house owners.

You have been hired by the company as a marketing consultant. Please address the following questions. Make and state suitable assumptions wherever necessary.

Questions:

- (i) Evaluate how the buying behaviour is likely to be different in the commercial offices from individual households.
- (ii) Analyze the nature of competition and its implication on Raj Doors.
- (iii) Develop a marketing strategy with focus on Strategic Orientation (whether you would like to be leader, challenger and follower)? Discuss its implications.



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COURSE – 204: HUMAN RESOURCE MANAGEMENT

(SECOND SEMESTER)

ASSIGNMENT – I

(MARKS: 15)

ANSWER ALL QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

1. a) Distinguish between Personnel Management and Human Resource Management. Also narrate briefly the key process areas of HRM.
b) Discuss the impact of the changing trends in the following factors on the HRM functions: (i) Socio-Cultural Factors; (ii) Technological Factors; and (c) Mission.
2. a) What is 'Employee Separation'? Explain different types of employee separations. How can separations be handled in an organization?
b) Explain the methods of Training and Development briefly. Also examine how training can be made as a strategic function of an organization.
3. a) Elaborate the modern methods of performance appraisal. Of these methods, which method(s) do you recommend to: (i) Government Hospital and (ii) Five Star Hotel? Why?
b) Explain these concepts: (i) Performance Management; (ii) Talent Management; (iii) Competency Management; and (iv) Job Satisfaction.

ASSIGNMENT – II

(MARKS: 15)

ANSWER ALL QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

1. a) Describe the analytical and non-analytical methods of job evaluation briefly. Which one(s) do you think more suitable to IT Sector?
b) Define the concept of 'Employee Engagement'. Discuss the drivers of employee engagement.
2. a) Discuss the significance of Information System in HRM. Also explain the types of HR Analytics.
b) Distinguish between the cost-based and value-based approaches in Human Resource Accounting.
3. Analyze the following case-let and answer the questions asked at the end:

Vishal Industries Ltd., is a medium sized engineering factory employing 250 employees. The Factory Manager advised the HR Manager of the company to select a right man to fill up the

vacancy of a "Time-Keeper". The HR Manager inserted an advertisement for this post in prominent local newspapers and received a large number of applications although specific job description and job requirements were embodied in the advertisement. After preliminary screening of applications, the Personnel Manager selected only 6 applications out of 197 and sent them "Application Blank" for collecting their detailed information. On receipt of applications and on further scrutiny, it was observed that two candidates were age-bared, although they had a good experience at their credit and one candidate had a suspicious personal life. The HR Manager therefore selected only 3 candidates and sent them call-letters for a personal interview on a stipulated date.

Only two candidates out of three appeared for the interview before the Interview Panel consisting of three interviewers. The panel had therefore to take a decision on selection, either of Mr. Tukaram Patil or Mr. Girish Mahajan. The personal traits and merits of these two candidates are as follows:

Mr. Tukaram Patil, a young man of 30 years, has worked for a year in the Time Office of a reputed company. He is an exceptionally sociable, amicable individual who enjoys mixing with employees. His verbal skills are average. But he has a good degree of hardness. He can sit late in office and prepare payrolls of employees and complete the checking of pay sheets a day before the actual date of payment. He does not demand extra remuneration or over-time for sitting late hours in office. He is a good sportsman also and has worked as a secretary of a sports club. A glaring weakness as revealed during the interview is that Mr. Patil's memory is not strong and he may forget a task assigned to him. But he is straight forward and frankly accepts his limitations.

Mr. Girish Mahajan, is also a youth, aged 25, and has a good personality, above average communication skills, but at times is "rough" in dealing with people. His clerical and computational skills are excellent. He does not on his own mix with people or takes part in extra-curricular activities. He joined a textile mill as a clerk in the Time Office and was promoted to the post of Assistant Time Keeper within a period of 5 years. He is against the principle of sitting late in office. His sense of time keeping, punctuality is good and regular. He feels that attendance of employees must be posted in the regular register on the same day and pay sheets must be kept ready on 1st of every month and sent to A/c Department, for checking before 3rd inst. Similarly, he prepares PF/ESI statements and returns in time and submits the same to respective Government authorities in time. However, Mr. Girish Mahajan is short tempered and at times he also had heated arguments with managerial executives. He limits his existence to his working table and if anybody unconnected with the time-office work comes near his table, he loses his temper.

Questions:

- (a) In terms of overall capabilities and job requirements, whom will you recommend out of the two candidates, in your capacity as a HR Manager?
- (b) What are the criteria of your decision?
- (c) In case the other two members of the interview Panel differ from your decision, how will you convince them?
- (d) As a Manager HR, what will you do to improve the interpersonal relations in the organization?



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**COURSE – 205: OPERATIONS MANAGEMENT
(SECOND SEMESTER)**

ASSIGNMENT – I

(MARKS: 15)

ANSWER ALL QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

1. a) Explain the terms: (i) Productivity; (ii) Productivity Engineering; and (iii) Productivity Management. Also discuss how a competitive advantage helps a company.
b) What is ‘Lean Production’? How to achieve it? Explain with the help of an example.
2. a) Discuss the factors affecting the decision relating to plant location. If you want to set up a car manufacturing unit, what are the factors will you consider before selecting the location?
b) (i) How is Product Life Cycle related to a firm’s capacity? What changes the firm should make at various stages to remain economical?
(ii) The design capacity for engine repair in our company is 80 trucks per day. The effective capacity is 40 engines per day and the actual output is 36 engines per day. Calculate the utilization and efficiency of the operation. If the efficiency for the next month is expected to be 82%, what is the expected output?
3. a) (i) Explain the terms: Work Design, Work Study, Time Study, and Method Study.
(ii) A time study analyst timed an assembly operation for 30 cycles, and then computed the average time per cycle, which was 18.75 minutes. The analyst assigned a performance rating of .96, and decided that an appropriate allowance was 15 per cent. Assume the allowance factor is based on the *workday*. Determine: (i) The Observed Time; (ii) The Normal Time; and (iii) The Standard Time.
b) (i) Define Line of Balancing. Discuss the steps involved in LOB with the help of relevant figures.
(ii) Use graphical method to minimize the time needed to process the following jobs on the machines shown (i.e., for each machine, find the job which should be scheduled first). Also calculate the total time elapsed to complete both jobs:

Job 1	Sequence	A	-	B	-	C	-	D	-	E
	Time (hrs.)	3		4		2		6		2
Job 2	Sequence	B	-	C	-	A	-	D	-	E
	Time (hrs.)	5		4		3		2		6

ASSIGNMENT – II
ANSWER ALL QUESTIONS
ALL QUESTIONS CARRY EQUAL MARKS

(MARKS: 15)

1. a) A small project is having seven activities (A to G). The relevant data about these activities is given below:

Activity	Dependence	Normal Duration (Days)	Crash Duration (Days)	Normal Cost (Rs.)	Crash Cost (Rs.)
A	—	7	5	500	900
B	A	4	2	400	600
C	A	5	5	500	500
D	A	6	4	800	1000
E	B,C	7	4	700	1000
F	C,D	5	2	800	1400
G	E,F	6	4	800	1600

- (i) Draw the project network. Find out the duration of each path in the network.
- (ii) Mark the critical path in the network and find out its length.
- (iii) What is the percentage increase in cost to complete the project in 21 days?

b) The following table gives the number of defects observed in 8 woollen carpets. Construct the control chart(c-chart) for the number of defects.

Carpet No.:	1	2	3	4	5	6	7	8
No. of Defects:	2	5	5	6	1	5	1	7

2. a) What is 'Failure Analysis'? Write a detailed on it.
- b) (i) What is the difference between Value Analysis, Value Engineering and Value Control? Illustrate your answer with the help of an example.
- (ii) Discuss various aggregate production planning strategies in materials management.

3. a) (i) A local distributor for a national tyre company expects to sell approximately 9600 steel-belted radial tyres of a certain size and tread design neat year. Annual carrying costs are Rs. 16 per tyre, and ordering costs are Rs. 75. The distributor operates 288 days a year. You are required to determine: (1) EOQ; (2) How many times per year does the store reorder? and (3) The length of an order.

(ii) The samples each of size 100 were inspected. The results of the inspection are given below:

Sample Number	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
No. of Defectives	2	1	3	0	2	3	1	2	0	4
	3	2	0	4	1	7	0	1	3	1

Construct p-chart and np-chart and comment whether the process is under control or not.

- b) In a transmission line project, the normal estimate and the 'crash' estimate are as given below:

Activity	Normal Estimate		'Crash' Estimate	
	Time (Weeks)	Direct cost for the activity (Rs. lakhs)	Time (weeks)	Direct cost for the activity (Rs. lakhs)
(1,2)	12	1	9	2.5
(2,3)	4	—	3	0.4
(2,4)	20	—	20	—
(3,5)	20	5	14	6.5
(3,6)	8	—	4	0.2
(3,7)	8	—	4	0.2
(4,7)	8	0.5	4	1.0
(6,7)	8	0.4	5	1.0
(7,8)	12	3	9	4.0

Indirect costs: Rs. 35,000 per week.

- (i) Draw the project network. Find out the critical path and its duration.
- (ii) Calculate the cost slope of various activities.
- (iii) Crash the project to 43 weeks and calculate the total cost.



DR. B.R. AMBEDKAR OPEN UNIVERSITY

**DEPARTMENT OF BUSINESS MANAGEMENT
MASTER OF BUSINESS ADMINISTRATION (MBA) PROGRAMME
(BATCH: 2020-21)**

COURSE - 206: QUANTITATIVE TECHNIQUES

(SECOND SEMESTER)

ASSIGNMENT – I

(MARKS: 15)

ANSWER ALL QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

1. a) (i) Define ‘Quantitative Decision Making’. Explain the role and advantages of the same in business and management.
(ii) Determine the sum of the series,
{1+3-5+7+9-11+13+15-17+ to 3_n terms}.

- b) (i) If $8x + 3y = 20$ and $9x + 10y = 19$. Represent these equations in matrices form.
(ii) Find the maxima and minima of the function, $y = 2x^3 + 3x^2 - 36x + 10$.

2. a) (i) Define ‘Research’. Explain briefly the business research process.
(ii) What is a Questionnaire? Discuss the essential characteristics of a good questionnaire. When do you use pre-testing a questionnaire?

- b) (i) Calculate Mean, Median and Mode from the following data:

Wages (Rs.):	20-60	20-55	20-40	20-30
No of Workers:	80	74	40	12
Wages (Rs.):	20-50	20-45	20-25	20-35
No of Workers:	67	55	5	22

- (ii) Calculate Standard Deviation and its coefficient from the following data by direct and short cut method:

Marks out of 10:	0-2	2-4	4-6	6-8	8-10	Total
No of Students:	2	5	15	7	1	30

3. a) (i) What is the Cause and Effect Relationship. Explain with the help of an example.
(ii) From the following observations, find the extent of correlation between the age and crime by using the product moment formula of Karl Pearson.

Age	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90-	90-100
No. of Persons (in lakhs)	80	60	50	40	30	25	20	15	10	5
No. of Crimes	50	45	40	35	30	20	15	11	8	3

b) (i) Explain the terms ‘Regression’ and ‘Regression Analysis’. Examine the role of regression analysis in business decision-making.

(ii) The following data gives the Age(x) and Blood Pressure(Y) for the 8 persons. Calculate the two regression equations. Take Ar-60 and A,-60.

Age (X)	52	63	45	36	72	65	47	25
Blood Pressure (Y)	62	53	51	25	79	43	60	33

ASSIGNMENT – II

(MARKS: 15)

ANSER ALL QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

1. a) (i) What do you mean by Permutations and Combinations?

(ii) A box of 100 gaskets contain 10 gaskets with Type A defects, 5 gaskets with Type b defects and 2 gaskets with both type of defects. Find the probabilities that: (1) A gasket to be drawn has Type B defect under the condition that it has a Type A defect; and (2) A gasket to be drawn has no Type B defect under the condition that it has no Type A defect.

b) (i) What is Binomial Distribution? What are its conditions and parameters?

(ii) Find the probabilities and the expected frequencies for the following data according to the “Law of Improbable Events” given by Poisson:

No. of Mistakes	0	1	2	3	4
No. of Printed Pages	109	65	22	3	1

2. a) (i) What is Sampling? Briefly describe the probability sampling methods with examples.

(ii) Illustrate the application of one-tailed test and two-tailed test.

b) (i) The following table shows the result of inoculation against cholera in a certain state.

	Not Attacked	Attacked	Total
Inoculated	267	37	304
Non- Inoculated	757	155	912
Total	1024	192	1216

Test whether inoculation against cholera is effective or not.

(ii) What do you mean by a Report? Narrate the guidelines for writing research report.

3. a) (i) What is the trend in a time series? The following table gives the annual sales (in Rs. ‘000) of a commodity:

Year	Sales	Year	Sales
1990	710	1996	644
1991	705	1997	783
1992	680	1998	781
1993	687	1999	805

1994	757	2000	805
1995	629		

Determine the trend by calculating the 5-yearly moving average.

(ii) Following figures related to Demand and Price of a commodity-

Demand:	20	22	24	26	28	30	32	34	36	38
Price per Kg.:	10	12	16	18	20	20	22	24	24	24

Calculate the two regression coefficients and find out the two regression equations.

Estimate the average probable price when the demand of the commodity is 31 kg.

b) (i) Using the method of ordinates, fit a normal curve to the following data, and add the necessary comment:

Marks	0-4	5-9	10-14	15-19	20-24
Frequency	17	33	12	18	20

(ii) To test the efficiency of a new drug a controlled experiment was conducted wherein 300 patients were administrated the new drug and 200 other patients were not given the drug. The patients were monitored and the results were obtained as follows:

	Cured	Condition Worsened	No Effect	Total
Given the Drug	200	40	60	300
Not Given the Drug	120	30	50	200
Total	320	70	110	500

Use Chi-Square Test for finding the effect of the drug.
