**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**
**End Semester Examination, May 2019**

Course:    Project Management & Contract Administration          Semester:  VI
Program:   MBA (PM)                                              Time: 03 Hours
Course code:LSCM 8001                                            Max. Marks: 100
Instructions: Use of calculator is allowed

## SECTION A (Define terms/answer in one or two lines)

| | | Marks | CO |
|---|---|---|---|
| Q 1 | a) Project <br> b) PMBOK <br> c) Product scope <br> d) WACC <br> e) Stakeholder <br> f) LSTK <br> g) Triple Constraint <br> h) EIA <br> i) Procurement <br> j) EVMS | 2*10 = 20 | CO1, CO2, CO3, CO4, CO5 |

## SECTION B (Write short notes on any four)

| | | | |
|---|---|---|---|
| Q 2 | Competencies of Project Manager | 5 | CO1 |
| Q 3 | Non-Financial Aspects of Business Case Analysis | 5 | CO2 |
| Q 4 | CPM vs. PERT | 5 | CO3 |
| Q 5 | Time Overrun & Cost Overrun | 5 | CO4 |
| Q 6 | Types of Contract | 5 | CO3 |

## SECTION-C (Answer any two questions)

| | | | |
|---|---|---|---|
| Q 7 | Describe project life cycle and its different phases & their specific outcomes. How various significant factors behave during its course? | 15 | CO1 |
| Q 8 | The cash flows of two projects are as under. Determine the payback period and NPV of the following projects and compare them according to each criterion. The cost of capital is 12% per annum. (All figures in in Rs. Crores) | 15 | CO2 |

| Project Name | Initial Investment | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|---|
| GANGA VALLEY | 100 | 40 | 30 | 30 | 30 | 30 |
| YAMUNA VALLEY | 100 | 50 | 50 | 20 | 15 | 10 |

| Q 9 | A project has a budget of USD 1 Million. and is planned to be completed in 12 months. The following table shows the cumulative values (in USD) at end of each 4 months: | | |
|---|---|---|---|

| Month | Planned Cost | EV | Actual Cost |
|---|---|---|---|
| 1 | 70,000 | 20,000 | 25,000 |
| 2 | 140,000 | 60,000 | 90,000 |
| 3 | 220,000 | 100,000 | 150,000 |
| 4 | 300,000 | 140,000 | 210,000 |

a) Calculate the cost variance, schedule variance, CPI & SPI at the end of fourth month.
b) At the end of the 4th month, estimate the estimate the cost at completion and the likely time of completion of project if efficiency remains the same.
c) Estimate likely time for completion of project if efficiency becomes 100% from next month.
d) What should be the target efficiency so that project completes in time and budget.

**15** **CO3**

## SECTION-D

Q 10 Consider the data of a project shown in the following table:

| Activity | Immediate predecessor(s) | Time (weeks) | | Cost (Rs. '000) | |
|---|---|---|---|---|---|
| | | Normal | Crash | Normal | Crash |
| A | - | 8 | 6 | 4000 | 4300 |
| B | - | 5 | 4 | 3000 | 3150 |
| C | - | 10 | 8 | 6000 | 6800 |
| D | A | 6 | 5 | 4000 | 4200 |
| E | C | 7 | 7 | 5000 | - |
| F | D | 9 | 7 | 7000 | 7550 |
| G | B,E | 3 | 2 | 2000 | 2100 |

If the indirect cost per week is Rs. 350, find the optimal crashed project completion time.

Then, plan project execution with the help of Gantt Chart and prepare Cost baseline.

**30** **CO4**

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## SECTION A (Define terms/answer in one or two lines)

|  |  | Marks | CO |
|---|---|---|---|
| Q 1 | k) Project Management<br>l) PMI<br>m) Project scope<br>n) Payback period<br>o) WBS Dictionary<br>p) Network<br>q) Contract<br>r) Project Sponsor<br>s) Risk Register<br>t) CPI & SPI | 2*10 = 20 | CO1, CO2, CO3, CO4, CO5 |

## SECTION B (Write short notes on any four)

|  |  | Marks | CO |
|---|---|---|---|
| Q 2 | Project Management Knowledge Areas | 5 | CO1 |
| Q 3 | Project Charter | 5 | CO2 |
| Q 4 | Quality Costs | 5 | CO4 |
| Q 5 | Project Risk | 5 | CO4 |
| Q 6 | PM softwares | 5 | CO3 |

## SECTION-C (Answer any two questions)

|  |  | Marks | CO |
|---|---|---|---|
| Q 7 | How a project identified and selected? What are the benefits of using project management tools & techniques in achieving project success? Briefly comment on the status of projects in India. | 15 | CO1 |
| Q 8 | The estimated investments and cash inflows of two commercial projects are tabulated below. Calculate the payback period and NPV of these projects and rate them according to each criterion. The cost of capital is 12% per annum. (All figures in INR Lakhs) | 15 | CO2 |

| Project Name | Initial Investment | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|---|
| CHANDRALOK | 4000 | 1600 | 1200 | 1200 | 1200 | 1200 |
| SURYA NAGRI | 4000 | 2000 | 2000 | 2000 | 600 | 400 |

| Q 9 | A project has a budget of INR 7 Lakhs. and is planned to be completed in 10 months. The following table shows the cumulative values (in INR) at end of $1^{st}$ & $2^{nd}$ month: | 15 | CO3 |
|---|---|---|---|

| Month | Planned Cost | EV | Actual Cost |
|---|---|---|---|
| 1 | 70,000 | 20,000 | 25,000 |
| 2 | 140,000 | 70,000 | 100,000 |

e) Calculate the cost variance, schedule variance, CPI & SPI at the end of second month.
f) At the end of the $2^{nd}$ month, estimate the estimate the cost at completion and the likely time of completion of project if efficiency remains the same.
g) Estimate likely time for completion of project if efficiency becomes 100% from next month.
h) What should be the target efficiency so that project completes in time and budget.

## SECTION-D

| Q 10 | Consider the data of a project shown in the following table: | 30 | CO4 |
|---|---|---|---|

| Activity | Immediate predecessor(s) | Time (weeks) | | Cost (Rs.) | |
|---|---|---|---|---|---|
| | | Normal | Crash | Normal | Crash |
| A | - | 7 | 4 | 1800 | 2100 |
| B | - | 9 | 7 | 3500 | 3800 |
| C | B | 5 | 4 | 2500 | 2625 |
| D | A | 8 | 5 | 4000 | 4225 |
| E | C | 9 | 8 | 3000 | 3325 |
| F | B | 11 | 11 | 3000 | -- |

If the indirect cost per week is Rs. 310, find the optimal crashed project completion time.

Then, plan project execution with the help of Gantt Chart and prepare Cost baseline.