



AIKTC/KRRC/SoET/ACKN/QUES/2021-22/

Date: _____

School: SoETBranch: ME-CEMSEM: II

To,
Exam Controller,
AIKTC, New Panvel.

Dear Sir/Madam,

Received with thanks the following **Semester/Unit Test-I/Unit Test-II (Reg./ATKT)** question papers from your exam cell:

Sr. No.	Subject Name	Subject Code	Format		No. of Copies
			SC	HC	
1	Advanced Construction Technology	CEM-201		✓	
2	Infrastructure Development	CEM-202		✓	
3	Project Economics & Financial Management	CEM-203		✓	
4	Department Level Optional Course (Remote Sensing and GIS in Construction)	DLOC201		✓	
5	Department Level Optional Course (Principles of Architecture & Planning)	DLOC205		✓	
6					

Note: SC – Softcopy, HC - Hardcopy

(Shaheen Ansari)
Librarian, AIKTC

D.P. Code: 00095418

28/06/2022

University of Mumbai
Examinations Summer 2022
Program: M.E (Civil) (Choice Based)
Curriculum Scheme: CBCGS

Examination: June 2022 Semester: II

Course Code: CEMC201

Course Name: Advanced Construction Techniques

Time: 2 hour 30 minutes

Max. Marks: 80

Q 1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks (20 marks)
1.	Well point is a
Option A:	Tunneling system
Option B:	Pile driving system
Option C:	Dewatering system
Option D:	Blasting system
2.	Modular shuttering is most suitable for
Option A:	tunnels
Option B:	Mass housing projects
Option C:	Small contractors
Option D:	Chimney construction
3.	The method of building a complete bridge deck from one abutment of the bridge only, manufacturing the superstructure of the bridge by sections to the other side is
Option A:	Conventional method
Option B:	Incremental launch Method
Option C:	Prefabrication method
Option D:	Pipeline insertion method
4.	Prefabricated housing system is most suitable
Option A:	For low-cost housing project.
Option B:	Rural and remote areas
Option C:	For cold regions
Option D:	during disaster or emergency events
5.	EDS and EMS are systems of
Option A:	Maglev
Option B:	Metro
Option C:	Monorail
Option D:	Wind mill
6.	What does not refer to limitations of Mivan technology
Option A:	More seismic resistance
Option B:	Services after completing become somewhat difficult
Option C:	shrinkage cracks are possible to appear

Option D:	Any change later becomes difficult
7.	The method of tunneling which is used in mountainous areas which uses the geological stress of the natural ground around a tunneling site
Option A:	Shield Method
Option B:	Drift Method
Option C:	Needle Method
Option D:	NATM
8.	Thermal power plants use coal for
Option A:	Harnessing its own heat.
Option B:	Lighting the interiors of the power plant
Option C:	Boiling water and creating steam.
Option D:	Running Generators
9.	Electricity transmission towers in mountainous areas are erected with the help of
Option A:	trolley
Option B:	helicopters
Option C:	Gantry cranes
Option D:	Mobile cranes
10.	Dredging is a major operation to be done while constructing
Option A:	Railway Stations
Option B:	Nuclear power plants
Option C:	Space stations
Option D:	Harbours and ports

Q2 (20 Marks)	Solve any Four out of Six	5 mark each
i	Write explanatory note on ground improvement techniques	
ii	Enlist various dewatering techniques. Explain any one	
iii	Differentiate between conventional and modern methods of formwork	
iv	What is NATM? Write advantages and limitations of NATM.	
v	Write a note on construction chemicals and admixtures.	
vi	Write a Note on tunnel boring machine.	

Q3 (20 Marks)	Solve any Two Questions out of Three	10 mark each
i	Enlist the different methods of tunneling in soft soil. State the various stages in construction of tunnels along with the equipment required. Describe with neat sketches any one method.	
ii	What do you mean by balanced cantilever method? Explain it with suitable sketch.	
iii	Describe in detail with diagram about slip and jump formwork	

Q4. (20 Marks)	
A	Solve any Two 5 marks each
i.	Explain step by step procedure involved in construction of bridges and flyover
ii.	What are maglev trains? Explain the working of maglev trains.
iii	Give the layout of a hydropower station and explain the techniques for setting up the same.
B	Solve any ONE 10 mark each
i.	What are special techniques required for construction and maintenance of high rise building?
ii.	What is formwork? Write a note on MIVAN formwork system along with their advantages & disadvantages

SP Code:- 00095434

30/06/2022

University of Mumbai
Examination First Half 2022
Examinations Commencing from 27th June 2022
Program: M.E Construction Engineering & Management
Curriculum Scheme: Rev 2016
Examination: M.E Semester II

Course Code: CEM-C202
 Time: 2-hour 30 minutes

Course Name: Infrastructure Development
 Max. Marks: 80

R16_CIVIL_II_CEMC202_QP3

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The National highway projects contracted out by NHAI under PPP mode is an example of
Option A:	BOT
Option B:	BOOT
Option C:	BIN
Option D:	OOT
2.	What is the default view of a new project in MS project?
Option A:	Gantt View
Option B:	Bar View
Option C:	Pain View
Option D:	Chart View
3.	Railway projects are treated as
Option A:	Light construction
Option B:	Heavy construction
Option C:	Industrial construction
Option D:	Mega construction
4.	Who is founder of GVK Infrastructure Limited?
Option A:	George Venkata Krishna Reddy
Option B:	Ganesh Venkata Krishna Reddy
Option C:	Gandhi Venkata Krishna Reddy
Option D:	Gunupati Venkata Krishna Reddy
5.	The most popular type of organization used for Civil Engineering Constructions, is
Option A:	Line organization
Option B:	Line and staff organization
Option C:	Functional organization
Option D:	Effective organization
6.	Power stations are generally treated as
Option A:	Light construction
Option B:	Heavy construction
Option C:	Industrial construction

Option D:	Electrical construction
7.	Bar charts are suitable for
Option A:	Minor works
Option B:	Major works
Option C:	Large projects
Option D:	Small Project
8.	What is Full Form of FICCI
Option A:	Federation of Indian Commercial of Commerce & Industry
Option B:	Foundation of Infrastructure Commercial of Commerce & Industry
Option C:	Federation of Indian Chambers of Commerce & Industry
Option D:	Foundation of Infrastructure Chambers of Commerce & Industry
9.	Who appoints the Vice-Chairperson of NITI Aayog?
Option A:	The NHAI Minister
Option B:	The Prime Minister
Option C:	The State Chamber
Option D:	The President
10.	GNP at MP =
Option A:	GDPMP - Depreciation
Option B:	GNP - Appreciation
Option C:	GDPMP + Depreciation
Option D:	GNP + Appreciation

Q2	Solve any Two 10 marks each	(20 Marks)
A	Explain the 12th five year development plan for infrastructure development	
B	Explain by mentioning facts how government policies affects infrastructure development	
C	Explain the environmental clearances & approvals required for infrastructure project.	

Q3	Solve any Two 10 marks each	(20 Marks)
A	Which are various measures of economy of the nation? Explain clearly.	
B	Explain the sources of finance required for infrastructure, development in India?	
C	What is G.D.P. & G.N.P? Explain it clearly; also explain its role associated with economy of nation.	

Q4	Solve any Two 10 marks each	(20 Marks)
A	Define, Infrastructure. Explain detailed classification of Infrastructure Projects	
B	What is FICCI? Explain its role clearly	
C	What you understood by F.D.I? Explain the role of F.D.I in construction industry.	

S.Pcode: 00095397

University of Mumbai

Examination 2022

Program: Civil Engineering - M.E Civil - CE&M
Curriculum Scheme: Rev-2016

Examination: M.E Civil CE&M Semester II

Course Code: CEMC203 and Course Name: Project Economics and Financial Management

Time:

Max. Marks: 80

For the students:- All the Questions are compulsory and carry equal marks .

Q1. (20 Marks)	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	An international contract was signed between an Indian contractor and a Canadian client in June 2021 for USD 20,00,000. The running bills as well as final bills were agreed to be paid in US dollars. When the bid was awarded in June 2021, the exchange rate was per dollar was Rs. 74.9 in international market. When the first running bill of USD 4,50,000 became due in June 2022, the dollar exchange was Rs. 78.2 per unit. How much additional profit/loss for the project will the Indian contractor make/suffer in the year due to exchange rate fluctuation?
Option A:	Rs. 14,22,334 additional profit
Option B:	Rs. 19,826 additional profit
Option C:	Rs. 14,85,000 additional profit
Option D:	Rs. 14,22,334 loss
2.	The primary aim of financial management is
Option A:	to maximize the profit
Option B:	wealth maximization
Option C:	ratio analysis
Option D:	generate surplus working capital
3.	A construction project is awarded in 2022. After 5 years, in 2027, Rs. 49,50,00,000 need to be paid. If assumed average discount factor is 10% per annum, what would be the present value of bills payable in 2027?
Option A:	Rs. 30,73,56,055
Option B:	Rs. 79,72,02,450
Option C:	Rs. 54,45,00,000
Option D:	Rs. 45,00,00,000

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4.	A portfolio consists of investment in real estate and investment in infrastructure projects in equal amounts. When the market is in full swing, both investments show similar rising trends (perfect positive co-relation). If the returns in real estate are expected to be 15% with a risk factor of 12%, and returns in infrastructure projects are expected to be 25% with a risk factor of 30%, what is the combined risk-return characteristic of the portfolio?
Option A:	22.3% risk, 25.6% return
Option B:	31% risk, 40% return
Option C:	21% risk, 20% return
Option D:	11% risk, 10% return
5.	In a balance sheet
Option A:	profit and loss are always equal
Option B:	assets and liabilities are always equal
Option C:	funds and portfolios are balanced
Option D:	equity and debt is balanced
6.	Calculate 'Quick Ratio' from the following information: Current liabilities = Rs. 3,00,000; Current assets = Rs. 3,80,000; Inventories = Rs. 80,000; Advance tax = Rs. 50,000; Prepaid expenses = Rs. 40,000
Option A:	0.7
Option B:	0.85
Option C:	0.9
Option D:	0.6
7.	XYZ Ltd., has a current ratio of 2:1 and quick ratio of 1:1. If excess of current assets over quick assets represented by inventories is Rs. 23,000, what are the <u>current liabilities</u> ?
Option A:	Rs. 23,000
Option B:	Rs. 46,000
Option C:	Rs. 11,500
Option D:	Cannot be determined

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8.	Project "A" has an initial investment of Rs. 12 cr., whereas project "B" has an initial investment of Rs. 15 cr. Expected yearly returns project for the first 4 years for the project A are Rs. 5cr., Rs. 4.5 cr., Rs. 4 cr and Rs. 3.5 cr. respectively; whereas, expected yearly returns project for the first 4 years for the project B are Rs. 6 cr., Rs. 5.5 cr., Rs. 5 cr. and Rs. 4.5 cr. respectively. Assume discount factor as 10%. Based on the available data, which of the following statements is true?
Option A:	NPV of project "A" is higher than project "B"
Option B:	B/C ratio of project "A" is better than project "B"
Option C:	Both projects A&B are equally good based on B/C ratio
Option D:	B/C ratio of project "B" is better than project "A"
9.	Which of the following clearly defines venture capital?
Option A:	It is a short term capital provided by banks to defaulters
Option B:	It is a long-term start up capital provided to new entrepreneurs
Option C:	It is a fund provided to industries at the time of incurring losses
Option D:	It is a trade credit allowed by creditors for a short term
10.	The measure of how efficiently the assets (resources) are employed by the firm are termed as
Option A:	Profitability ratio
Option B:	Liquidity ratio
Option C:	Leverage ratio
Option D:	Activity ratio

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Q2 (20 Marks)													
A	Solve any Two 5 marks each												
i.	Elaborate the role of lender's Engineer for execution of a major construction project												
ii.	Explain CIDC-ICRA grading system of construction entities												
iii.	What do you understand by an escrow account? How is it useful for construction projects?												
B	Solve any One 10 marks each												
i.	<p>A contractor has to take a decision whether to bid for a construction project or not. The decision criteria is based on NPV. The project worth is ₹1500 crores to be completed in 5 years. Based on the tender conditions and the company policy, following information is generated:</p> <p>a. Mobilization Advance: 6% of project worth. Mobilization Advance will be deducted in 3 equal installments, starting from the first year</p> <p>b. C.E Advance: 10% of project worth. It will be deducted in 2 equal installments starting from the 2nd year</p> <p>c. Material cost component of the project is 40%. Secured advance against materials brought to site is 60% of the material cost. Secured Advance is accounted in proportion to the yearly bill payable to the contractor. Secured Advance will be deducted in 3 equal installments from the running bills starting from the 2nd year</p> <p>d. Contractor has to pay 3% as Performance Security in the beginning and 3% Retention amount, which are deductible from each running bill. Performance Security will be released after the end of the project during the 6th year and retention amount will be released in the 7th year at the end of defects liability period.</p> <p>e. the yearly bills payable to the contractor including the retention amount are as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Year</th> <th style="text-align: center;">Amount (in crore ₹)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">200</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">400</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">500</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">250</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">150</td> </tr> </tbody> </table> <p>f. Net profit from the above project before deduction of taxes is 10%. Profit is accounted yearly in proportion to the bill amount</p> <p>g. Income tax is charged at 30%. Working capital required to be raised is estimated at 8%. Working capital may be divided in the proportion of yearly bill. Interest on the working capital is 12% (simple interest). Repayment of working capital is to be considered in the 6th and 7th year together with its simple interest</p> <p>h. Consider the cost of capital as 10%</p> <p>i. Estimated cost of the defects arising during d.l.p is 1.5% of the project worth</p> <p>Prepare a cash flow statement for the contractor over the 7 year period. Establish the project feasibility using NPV</p>	Year	Amount (in crore ₹)	1	200	2	400	3	500	4	250	5	150
Year	Amount (in crore ₹)												
1	200												
2	400												
3	500												
4	250												
5	150												
ii.	Explain with an example, the technicalities involved in dealing with foreign exchange on a project having stakeholders from different nationalities.												

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Q3. (20 Marks)																																																																																																																													
A	Solve any Two			5 marks each																																																																																																																									
i.	Explain the utility of production budget and labour budget																																																																																																																												
ii.	How are accounts maintained on construction sites?																																																																																																																												
iii.	Distinguish between equity shares and preference shares.																																																																																																																												
B	Solve any One			10 marks each																																																																																																																									
i.	<p>The estimated cost of an expressway to be constructed on BOT basis between 2 megacities is ₹ 2000 crores. The project is to be completed in 4 years and the expected life of the project after vehicles start plying on it is 25 years; after which it needs to be scrapped off and replaced. The commissioning period for the contractor is 10 years, after which the project becomes government property. The contractor had taken a bridging loan of ₹ 500 crores (on simple interest of 12%p.a) at the start of the project which is to be repaid back between the years 6-10 of the project life cycle in equal yearly instalments. The cashflows at the end of each years are estimated as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Year No.</th> <th style="text-align: center;">Construc- tion costs</th> <th style="text-align: center;">Expected Toll to be collected</th> <th style="text-align: center;">Expected Repairs and maintenance</th> <th style="text-align: center;">Year No.</th> <th style="text-align: center;">Expected Toll to be collected</th> <th style="text-align: center;">Expected Repairs and maintenance</th> </tr> <tr> <th></th> <th style="text-align: center;">In crore ₹</th> <th style="text-align: center;">In crore ₹</th> <th style="text-align: center;">In crore ₹</th> <th></th> <th style="text-align: center;">In crore ₹</th> <th style="text-align: center;">In crore ₹</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">0</td><td></td><td></td><td></td><td style="text-align: center;">15</td><td style="text-align: center;">750</td><td style="text-align: center;">100</td></tr> <tr><td style="text-align: center;">1</td><td style="text-align: center;">300</td><td></td><td></td><td style="text-align: center;">16</td><td style="text-align: center;">760</td><td style="text-align: center;">105</td></tr> <tr><td style="text-align: center;">2</td><td style="text-align: center;">550</td><td></td><td></td><td style="text-align: center;">17</td><td style="text-align: center;">770</td><td style="text-align: center;">110</td></tr> <tr><td style="text-align: center;">3</td><td style="text-align: center;">650</td><td></td><td></td><td style="text-align: center;">18</td><td style="text-align: center;">780</td><td style="text-align: center;">115</td></tr> <tr><td style="text-align: center;">4</td><td style="text-align: center;">500</td><td></td><td></td><td style="text-align: center;">19</td><td style="text-align: center;">790</td><td style="text-align: center;">120</td></tr> <tr><td style="text-align: center;">5</td><td></td><td style="text-align: center;">600</td><td style="text-align: center;">15</td><td style="text-align: center;">20</td><td style="text-align: center;">800</td><td style="text-align: center;">130</td></tr> <tr><td style="text-align: center;">6</td><td></td><td style="text-align: center;">620</td><td style="text-align: center;">20</td><td style="text-align: center;">21</td><td style="text-align: center;">810</td><td style="text-align: center;">140</td></tr> <tr><td style="text-align: center;">7</td><td></td><td style="text-align: center;">640</td><td style="text-align: center;">25</td><td style="text-align: center;">22</td><td style="text-align: center;">820</td><td style="text-align: center;">150</td></tr> <tr><td style="text-align: center;">8</td><td></td><td style="text-align: center;">660</td><td style="text-align: center;">30</td><td style="text-align: center;">23</td><td style="text-align: center;">830</td><td style="text-align: center;">160</td></tr> <tr><td style="text-align: center;">9</td><td></td><td style="text-align: center;">680</td><td style="text-align: center;">40</td><td style="text-align: center;">24</td><td style="text-align: center;">840</td><td style="text-align: center;">170</td></tr> <tr><td style="text-align: center;">10</td><td></td><td style="text-align: center;">700</td><td style="text-align: center;">50</td><td style="text-align: center;">25</td><td style="text-align: center;">850</td><td style="text-align: center;">180</td></tr> <tr><td style="text-align: center;">11</td><td></td><td style="text-align: center;">710</td><td style="text-align: center;">60</td><td style="text-align: center;">26</td><td style="text-align: center;">855</td><td style="text-align: center;">190</td></tr> <tr><td style="text-align: center;">12</td><td></td><td style="text-align: center;">720</td><td style="text-align: center;">70</td><td style="text-align: center;">27</td><td style="text-align: center;">860</td><td style="text-align: center;">200</td></tr> <tr><td style="text-align: center;">13</td><td></td><td style="text-align: center;">730</td><td style="text-align: center;">80</td><td style="text-align: center;">28</td><td style="text-align: center;">865</td><td style="text-align: center;">220</td></tr> <tr><td style="text-align: center;">14</td><td></td><td style="text-align: center;">740</td><td style="text-align: center;">90</td><td style="text-align: center;">29</td><td style="text-align: center;">870</td><td style="text-align: center;">250</td></tr> </tbody> </table> <p>Determine, based on NPV, whether the project is feasible for both the project parties. Also show the BEP of the project</p>						Year No.	Construc- tion costs	Expected Toll to be collected	Expected Repairs and maintenance	Year No.	Expected Toll to be collected	Expected Repairs and maintenance		In crore ₹	In crore ₹	In crore ₹		In crore ₹	In crore ₹	0				15	750	100	1	300			16	760	105	2	550			17	770	110	3	650			18	780	115	4	500			19	790	120	5		600	15	20	800	130	6		620	20	21	810	140	7		640	25	22	820	150	8		660	30	23	830	160	9		680	40	24	840	170	10		700	50	25	850	180	11		710	60	26	855	190	12		720	70	27	860	200	13		730	80	28	865	220	14		740	90	29	870	250
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ii.	Innumerate the various ways in which the funds were raised from conception to completion of the Konkan Railway project. Discuss the hurdles faced and the solutions envisaged. Justify why the case study is an example of financial success.																																																																																																																												

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Q4. (20 Marks)																			
A	Solve any Two 5 marks each																		
i.	Explain how BOT is effective model for financing in highway projects in India.																		
ii.	<p>A typical cost sheet of a manufacturing company provides following particulars:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Sr. no.</th> <th style="text-align: center;">Particulars</th> <th style="text-align: center;">Amount per units(₹)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Element of costing:</td> <td></td> </tr> <tr> <td></td> <td style="padding-left: 20px;">a. Raw materials</td> <td style="text-align: right;">75</td> </tr> <tr> <td></td> <td style="padding-left: 20px;">b. Direct labours</td> <td style="text-align: right;">25</td> </tr> <tr> <td></td> <td style="padding-left: 20px;">c. Overheads</td> <td style="text-align: right;">50</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Profits:</td> <td style="text-align: right;">30</td> </tr> </tbody> </table> <p>The following additional details are available:</p> <ol style="list-style-type: none"> i. Raw material in stock – on an average 1 month ii. Material in production – on an average ½ month iii. Finished goods in stock – on an average 1 month iv. Credits allowed by suppliers – 3 months v. Credits allowed to purchasers – 2 months vi. Lagged payment of wages – on an average ½ month vii. Overhead expenses(Lagged payment) – 1 month viii. ¼th of goods are sold against cash ix. Cash in hand and bank accounts is desired to be maintained at ₹ 3,50,000/- <p>Estimate the working capital needed to be kept ready for production of 1 lakh units per annum (assuming production is carried out throughout the year)</p>	Sr. no.	Particulars	Amount per units(₹)	1	Element of costing:			a. Raw materials	75		b. Direct labours	25		c. Overheads	50	2	Profits:	30
Sr. no.	Particulars	Amount per units(₹)																	
1	Element of costing:																		
	a. Raw materials	75																	
	b. Direct labours	25																	
	c. Overheads	50																	
2	Profits:	30																	
iii.	<p>Prepare a balance sheet based on the following data for a contractor's organisation:</p> <ol style="list-style-type: none"> a. Principal amounts to be paid back to the share-holders: Rs. 65,56,378 b. Amounts invested in shares: Rs. 71,44,318 c. Value of land procured: Rs. 37,91,893 d. Yearly bonus payable to share holders: Rs. 90,00,000 e. Security deposit paid: Rs. 1,91,086 f. Personal loans taken: Rs. 43,98,581 g. R.A bills to be paid to Sub – contractors: Rs. 12,06,916 h. Interest charges: Rs. 20,29,544 i. Machinery procured: Rs. 2,88,799 j. Bills certified by the consultants: Rs. 2,81,937 k. Bills pending of various Suppliers Rs. 11,856,55 l. Fixed deposits: Rs. 19,24,816 m. Debtors: Rs.75,44,952 n. Provisions: Rs. 11,07,602 o. Amount to be paid for sundry items: Rs. 18,05,349 p. TDS to be paid: Rs. 73,393 q. Tax deducted at source: Rs. 7,73,455 r. WIP inventory: Rs. 4,36,425 s. Corporation charges to be paid Rs. 4,66,833 t. Liquidity Rs. 1,23,472. <p>Prepare the balance sheet for the above scenario. Assume any data if required</p>																		

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B	Solve any 1						
i.	Summarized below are the income and expenditure forecast for the months of July to Dec 2022.						
	Month (all credit)	Sales	Purchase	Wages	Manufacturing expenses	Office expenses	Selling expenses
		₹	₹	₹	₹	₹	₹
	July	8,00,000	4,90,000	95,000	1,60,000	70,000	40,000
	Aug	7,20,000	3,70,000	95,000	1,70,000	75,000	45,000
	Sept	7,40,000	3,60,000	45,000	1,85,000	80,000	50,000
	Oct	6,90,000	3,60,000	85,000	1,95,000	60,000	45,000
	Nov	7,70,000	3,80,000	95,000	1,90,000	75,000	40,000
Dec	7,50,000	3,50,000	85,000	1,80,000	60,000	55,000	
<p>You are given the following further information:</p> <ol style="list-style-type: none"> i. Plant costing Rs. 10,60,000 is due for delivery, in November, payable at 50% on delivery and the balance after 3 months. ii. Advance tax of ₹ 85,000 is payable in July and October each. iii. Period of credit allowed by suppliers is 2 months and to customers is 1 month. iv. Lag in payment of manufacturing expenses is ½ month. v. Lag in payment of all other expenses is 1 month. <p>You are required to prepare a cash budget for 3 months starting on 1st September 2022, when there was a cash balance of ₹ 7,80,000</p>							
ii.	The expected cash flows from 2 alternatives are as follows :-						
	Year No.	Project A in lakh ₹		Project B in lakh ₹			
	0	(500)		(680)			
	1	(120)		230			
	2	360		240			
	3	325		250			
	4	450		260			
	5	440		280			
<p>For each alternative, determine</p> <ol style="list-style-type: none"> i. Pay - back period. ii. NPV at 10% interest rate. iii. IRR for Project 'B' (Approximate value) <p>Which investment alternative you would prefer and why? Justify.</p>							

04/07/2022

SPcode: 00095579

University of Mumbai

Examination June 2022

Program: Civil Engineering

Curriculum Scheme: Rev 2016

Examination: ME Civil (CE & M)

Semester II

Course Code: DLOC201 and Course Name: Remote Sensing and GIS in Construction

Time: 2.30 Hrs.

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal Marks (2 Marks each)
1	GIS deals with which kind of data
Option A:	Numeric data
Option B:	Binary data
Option C:	Spatial data
Option D:	Complex data
2	_____ occurs when particles or large gas molecules present in the atmosphere interact with and cause the electromagnetic radiation to be redirected from its original path
Option A:	Radiance
Option B:	Irradiance
Option C:	Greenhouse gas
Option D:	Scattering
3.	Which of the following is not a principle of remote sensing?
Option A:	Interaction of energy with satellite
Option B:	Electromagnetic energy
Option C:	Electro-magnetic spectrum
Option D:	Interaction of energy with atmosphere
4	It is easy to integrate GIS, Remote Sensing and GPS technologies because these
Option A:	Digital, special and generic
Option B:	Digital, analogue and manual
Option C:	Digital, spatial and generic
Option D:	Negative, positive and neutral
5	DBMS stands for
Option A:	Database Management System
Option B:	Database Monitoring System
Option C:	Database Manufacturing System
Option D:	Database Mixing Station
6	During which year the project on GPS was launched?
Option A:	1970
Option B:	1971
Option C:	1972
Option D:	1973

7	Spatial databases are also known as
Option A:	Geodatabases
Option B:	Mono databases
Option C:	Concurrent databases
Option D:	None of the above
8	The shape of a pixel of an image can only be:
Option A:	Rectangular
Option B:	Circular
Option C:	Square
Option D:	Triangle
9	The interaction of the electromagnetic radiation produced with a specific wave length to illuminate a target on the terrain for studying its scattered radiance, is called:
Option A:	Passive remote sensing
Option B:	Active remote sensing
Option C:	Neutral remote sensing
Option D:	None of these
10	The altitudinal distance of a geostationary satellite from the earth is about:
Option A:	26,000 km
Option B:	30,000 km
Option C:	36,000 km
Option D:	44,000 km

Q2		
A	Solve any One	10 marks
i.	Explain the Atmospheric effects on electromagnetic radiation.	
ii.	Classify the Various Remote Sensing Platforms in detail.	
B	Solve any One	10 marks
i.	What is GIS? Objectives of GIS, Importance of GIS? and Components of GIS.	
ii.	Describe the Application of GPS in detail.	

Q3		
A	Solve any One	10 marks
i.	Describe Remote sensing Process.	
ii.	Explain in brief about Digital Image processing	
B	Solve any One	10 marks
i.	Describe Remote sensing Sensors with a neat sketch	
ii.	Explain Orbital Characteristics, image rectification, and image enhancement	

Q4		
A	Solve any One	10 marks
	i. Explain the GPS Segments with Neat Sketch.	
	ii. Discus the Applications of GIS in Transportation Planning	
B	Solve any One	10 marks
	i. Explain the GIS applications in Urban Infrastructure Planning	
	ii. Give the Application of Remote Sensing and GIS in Earthquake Impact Assessment.	



04/07/2022

S.P code :- 00095203

University of Mumbai

Examination First Half 2022

Examinations Commencing from June 2022 to June 2022

Program: M. E. Civil (Construction Engineering & Management) Engineering

Curriculum Scheme: Rev 2016

Examination: ME Semester II

Course Code: **DLOC205** Course Name: **Principles of Architecture & Planning**

Time: 2-hour 30 minutes

Max. Marks: 80

Instructions: 1. Q. 1. is compulsory.

2. Solve any four from Q. 2. and from Q. 3

3. Solve any two from Q. 4.

4. Write answers pointwise wherever possible.

5. Answer in legible handwriting

Q. 1.	Choose the correct option for following questions.	(2 marks each)
1.	The two most important factors in the design of building are	
Option A:	Form and Function	
Option B:	Place and Function	
Option C:	Form and Place	
Option D:	Period and Function	
2.	Angles of across, Shared forms, shapes in a central line of reflection is the symmetry in Architecture is called	
Option A:	Point of Reflection	
Option B:	Point of Symmetry	
Option C:	Axis	
Option D:	Coincidence	
3.	From the given climatic conditions which have its worst effects on the building structure in India.	
Option A:	Hot summer days	
Option B:	Dust Storm	
Option C:	Humidity	
Option D:	Heavy Rain	
4.	Which IS code gives details about elevators	
Option A:	IS14665	
Option B:	IS38665	
Option C:	IS27752	
Option D:	IS27855	
5.	Establishment of the planning commission was in the year	
Option A:	1947	
Option B:	1948	
Option C:	1950	
Option D:	1965	

6.	A Weightage between 0 to 1 is provided to factors that influence its location decision in Site Selection Technique.
Option A:	Location rating factors technique
Option B:	Transportation Technique
Option C:	Centre of Gravity Technique
Option D:	Both B and C
7.	_____ is the repeating something at a Standard interval or pattern.
Option A:	Simplicity
Option B:	Rhythm
Option C:	Line
Option D:	Unity
8.	In grid Iron form of city
Option A:	All roads are radial
Option B:	Streets are at right angles
Option C:	Streets Radiates from important places
Option D:	Roads are random
9.	If constructed area is 78sq.m. and plot area is 50sq.m. their floor space index is.....
Option A:	1.56
Option B:	0.64
Option C:	2
Option D:	100
10.	Combining two or more plots as a single plot is called -----
Option A:	Amalgamation
Option B:	Frontage
Option C:	Bifurcation
Option D:	Building setback

Q. 2	Answer the following	(5 marks each)
1.	Explain the concept of aesthetics in architecture.	
2.	How does the climate, influence the design and construction of building?	
3.	What are the rules for approval of building plans?	
4.	What are the different types of building surveys?	
5.	What is the Urban Renewal Act?	
6.	What are the different elements of landscape design?	
Q. 3.	Write note on following.	(5 marks each)
1.	Aesthetics and functionality.	
2.	Climate and how is it determined.	
3.	Zoning regulations in a development plan.	
4.	Methods of surveying in construction.	
5.	Methods of urban renewal.	
6.	Technical considerations in landscape design.	
Q. 4.	Answer in detail, following questions.	(10 marks each)
1.	Explain climate responsive architecture.	

2.	Explain principles of planning and standards for library building.
3.	What is integration architecture? Explain.

