Jharkhand University of Technology, Ranchi

6th Semester Diploma Examination, 2022

Subject : Industrial Engg. & Management

Time Allowed : 3 Hours

Subject Code : 601

Full Marks : 80

Pass Marks : 26

Answer in your own words.

Answer five *questions in which* Question No. 1 *is compulsory
and answer* any four *from rest questions.*

All questions carry equal marks.

1. Choose the correct answer: 2×8=16

   (i) Basic tool in work study is

       (a) Graph paper   (b) Process chart

       (c) Planning chart   (d) stop watch

   (ii) For a product layout the material handling equipment must

       (a) have full flexibility

       (b) employ conveyor belts, tracks, tractors etc.

       (c) be a general purpose type

       (d) be designed as special purpose for a particular application

   (iii) Which of the following layouts is suited for mass production?

       (a) Process layout   (b) Product layout

       (c) Fixed position layout   (d) Plant layout

   (iv) The production cost per unit can be reduced by

       (a) Producing more with increased inputs   (b) Producing more with the same input

       (c) Eliminating idle time   (d) Minimizing resource wastage

   (v) Frederick W. Taylor introduced a system of working known as

       (a) Line organization   (b) Line and staff organization

       (c) Functional organization   (d) Effective organization

   (vi) Which of the following equation is not in conformity with others?

       (a) Organization performance × motivation = profit

       (b) Knowledge × skill = ability

       (c) Ability × motivation = performance

       (d) Attitude × situation = motivation

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(vii) Percent idle time for man or machine is found by

    (a) Work sampling   (b) Time study

    (c) Method study   (d) Work study

(viii) Which of these is not the principle of management by Henry Fayol?

    (a) Unity of command   (b) Science not a thumb rule

    (c) Authority and responsibility   (d) Esprit de crops .

2. (a) What are the characteristics of management? Explain any four of them.   8

   (b) With the help of a diagram explain the level of management.   8

3. (a) State the difference between Authority and Responsibility.   6

   (b) What are the '14' principles of management according to Henry Fayol? Explain briefly.   10

4. (a) Define HRM. Explain the structure of the human resource development in relation to the role of HR manager.   8

   (b) Explain the term selection. Elaborate on the process of recruitment and selection.   8

5. (a) What are the factors affecting entrepreneurship? Explain any four of them.   10

   (b) Define Training. What are the objective of training?   6

6. (a) Discuss the different form of ownership business.   8

   (b) Differentiate between product layout and process layout.   8

7. Write short notes on *any four* of the following: 4×4=16

   (a) ABC Analysis

   (b) Industrial Dispute Act

   (c) Intellectual Property Act

   (d) Functions of PPC

   (e) Joint stock company

   (f) Sole proprietorship

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Jharkhand University of Technology, Ranchi

6th Semester Diploma Examination, 2022

Subject : Estimating and Costing   Subject Code : CIV-605

Time Allowed : 3 Hours   Full Marks : 80

Pass Marks : 26

All questions carry equal marks.

Answer any five *questions in which* Question No. 1 *is compulsory.*

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1. Write very short notes on: 2×8=16
   - (a) Overhead charge
   - (b) Plinth area
   - (c) Carpet area
   - (d) Revised estimate
   - (e) Salvage value
   - (f) Depreciation
   - (g) Sinking Fund
   - (h) Schedule of bars

2. What are the different types of Estimates? How they differ from each other? Which of the methods can gives us the exact cost?   16

3. Work out quantity of internal plaster in C.M (1:4), Brick masonry in super structure in C.M (1:6) for a room size 5m × 4m having height of wall up to ceiling 3.1m, wall thickness = 300mm.   16

Item	Size	Quantity
D	1m × 2m	01
W_1	1·8m × 1·2m	01
W_2	1·6m × 1·2m	01

4. Write down the methods of preparation of approximate estimate. Explain with example.   16

5. Prepare an approximate Estimate of a proposed building from the following: 16

   Plinth area of the building = 226 sqm
   Cost of the structure = 2500 per sqm
   Electrification = 7%
   Fluctuation of rates = 55
   Petty supervision charges = 35

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6. Write the rules of deduction for openings as per IS 1200.
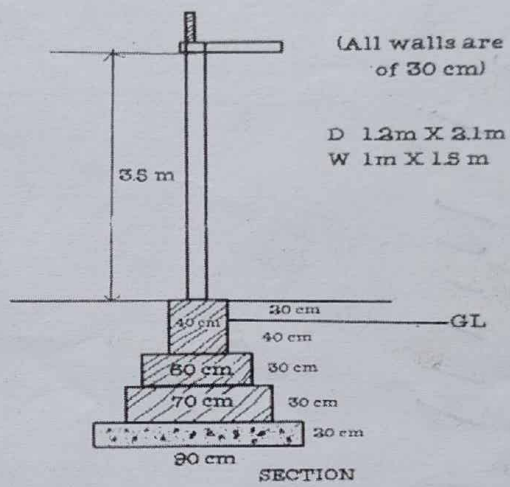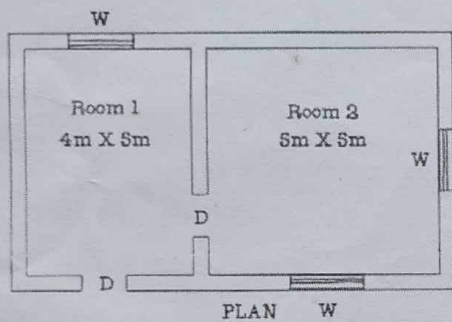
    (a) For Brickwork

    (b) For plastering   8+8=16

7. Calculate the quantity of :   16

    (a) Earth work in excavation.

    (b) Brick work in foundation.

    (c) Lime concrete in foundation.

    (d) Brick work in Super structure.

PLAN

(All walls are of 30 cm)

D 1.2m X 2.1m
W 1m X 1.5 m

SECTION

Jharkhand University of Technology, Ranchi

6th Semester Diploma Examination, 2022

Subject : Contract & Account
Time Allowed : 3 Hours

Subject Code : CIV-606
Full Marks : 80

Pass Marks : 26

Answers only five *questions in which* question no.1 *is compulsory*
and answer any four *from rest questions.*
Answer in your own words.

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1. Choose the correct options: 2×8=16

   (i) Which of the following is the purpose of the valuation?

      (a) Approximate estimation of cost   (b) Analysis of rate

      (c) Detailed estimation of cost   (d) Taxation

   (ii) Scrap value of a property may be

      (a) both negative or positive   (b) negative

      (c) positive   (d) constant

   (iii) Which of the following person functions as an arbitrator in Public Work Department?

      (a) Chief Engineer   (b) Junior Engineer

      (c) Superintending Engineer   (d) Supervisor

   (iv) Which department looks after the execution and maintenance of water supply and sanitary?

      (a) Public Works Department   (b) Social Welfare Department

      (c) Public Health Department   (d) None of these

   (v) The objective of creating the sinking fund is to accumulate the sufficient money to

      (a) most cost of construction and replacement after its useful life.

      (b) pay taxes.

      (c) recover the cost of construction.

      (d) have money of future.

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(vi) Which of the following is a type of lease where the duration of the lease for a property is given until the death of a person?

(a) Perpetual lease   (b) Sub lease

(c) Free hold   (d) Life lease

(vii) A method in which the plinth area of a building is measured and multiplied by the current plinth area rate is

(a) estimated cost from accounts.   (b) cost from detailed items.

(c) cubic rate estimate.   (d) estimate from the plinth area basis.

(viii) A procedure of actual costing and valuing an item of work on the basis of labourers and materials required is

(a) prime cost   (b) day work

(c) lump sum amount   (d) provisional sum

2. (a) Draft a tender notice for the construction of "WORK SHOP" building at your polytechnic campus costing Rs. 1·40 crores. (Assuming suitable data)

   (b) Differentiate between

      (i) Running Account bill and Final bill

      (ii) Part Payment and Advance Payment   8+8=16

3. (a) Draw the Administrative Structure of PWD. Also write the function of Junior Engineer.

   (b) Differentiate between the Daily Wages method and Piece Work method.   10+6=16

4. (a) What are the objective at BOT Project? Write its advantages and disadvantages.

   (b) Explain the various types of contracts and the circumstance in which they are used.   8+8=16

5. (a) What are the various account forms? Give their uses.

   (b) State the types of specification and explain in short each type.   8+8=16

6. (a) What is Depreciation? Is it applicable to land? Why?

   (b) Differentiate between

      (i) Salvage value and Scrap value

      (ii) Book value and Market value   8+8=16

7. Write short notes (*any four*):   4×4=16

   (a) Arbitration

   (b) Securing deposit

   (c) Administrative approval

   (d) Sinking Fund

   (e) Outgoings

   (f) Retention money

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Jharkhand University of Technology, Ranchi

6th Semester Diploma Examination, 2022

Subject : Water Resources Planning & Management (Elective-II)   Subject Code : CIV-608

Time Allowed : 3 Hours   Full Marks : 80

Pass Marks : 26

Each question carries equal marks.

Answer any five *questions in which* Question No. 1 *is compulsory.*

1. Fill in the blanks with appropriate words: 2×8=16

   (a) Discharge per unit draw down at a well is called _Specific capacity_

   (b) Water stored in the reservoir below the minimum pool level is known as _Dead Storage_

   (c) Eccentricity must be less than _B/6_ in order to ensure that no tension is developed anywhere in the dam.

   (d) The time period that elapses from the instant of its sowing to the instant of its harvesting is known as _Crop period_

   (e) _Lacey's regime_ theory is applicable only to channels which are in true regime or final regime.

   (f) Crop ratio is defined as ratio of area irrigated _Kharif to Rabi_

   (g) Spillway performs the function of _Control Release_

   (h) The maximum water application efficiency is in _Drip irrigation_

2. (a) What are the quality analysis and its requirement?

   (b) What are the consumptive and non consumptive of water?   8+8=16

3. (a) What are the merits and demerits of irrigation?

   (b) What do you understand by irrigation and steps followed in irrigation in India?   8+8=16

4. What is gravity dam? Describe various forces acting on gravity dam.   16

5. (a) What is Kennedy's and Lacey's regime theory?

   (b) What are the components parts of diversion headworks?   8+8=16

6. (a) Explain different method of laying out water distribution system with neat sketches.

   (b) What is canal lining? State its purpose and advantage.   10+6=16

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7. Write a short note on *any four*:   4×4=16

    (a) Kor watering

    (b) Canal head regulator

    (c) Canal lining

    (d) Sprinkler irrigation

    (e) Aqueduct

    (f) Crop season

Jharkhand University of Technology, Ranchi

6th Semester Diploma Examination, 2022

Subject : Design of Steel Structure   Subject Code : CIV604

Time Allowed : 3 Hours   Full Marks : 80

Pass Marks : 26

Answer in your own words.

Answer any five *questions in which* question no. 1 *is compulsory and* answer any four *from rest questions.*

All questions carry equal marks.

2×8=16

1. Choose the correct answer:

    (i) The modules of elasticity for mild steel is approximately equal to

         (a) $0{\cdot}1 \times 10^5\,N/mm^2$ (b) $0{\cdot}8 \times 10^5\,N/mm^2$

         (c) $1{\cdot}0 \times 10^5\,N/mm^2$ (d) $2{\cdot}1 \times 10^5\,N/mm^2$

    (ii) The distance between the centre of two consecutive rivets measured along a row of rivets is called as

         (a) Eccentric distance   (b) Edge distance

         (c) Gauge   (d) Pitch

    (iii) The gross diameter of a 20 mm rivet is

         (a) 20   (b) 25

         (c) 21·5   (d) 22

    (iv) Maximum permissible longitudinal pitch of rivets, in rivet joints in compression member is

         (a) 16 t   (b) 12 t

         (c) 16 D   (d) 12 D

    (v) What shall be the minimum effective throat thickness of a fillet weld in case of structural steel design?

         (a) 4 mm   (b) 3 mm

         (c) 5 mm   (d) 2 mm

    (vi) In the fillet weld the weakest section is the

         (a) smaller side of the fillet.   (b) throat of the fillet.

         (c) side perpendicular to force.   (d) side parallel to force.

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(vii) A steel member which is subjected to primary tension is called

(a) tie

(b) strut

(c) sling

(d) None of these

(viii) If a compression member of length L is restrained in rotation and translation at both the ends, then what is its effective length?

(a) 0·80 L

(b) 1·2 L

(c) 1·0 L

(d) 0·65 L

2. (a) What do you mean by roof trusses? Describe different parts of it by neat sketch.

(b) Design an unequal angle section to act as a tie member 1·65m long in a roof truss if it is to carry an axial load of 125 kN. Use suitable types of riveted connections.   2×8=16

3. (a) What is the advantages and disadvantages of welded joint?

(b) Design a bolted connection between a bracket 8mm thick and the flange of an ISHB 400 column using HSFG bolts, so as to carry a vertical load of 100 kN at a distance of 200 mm from the face of the column as shown in figure.   2×8=16
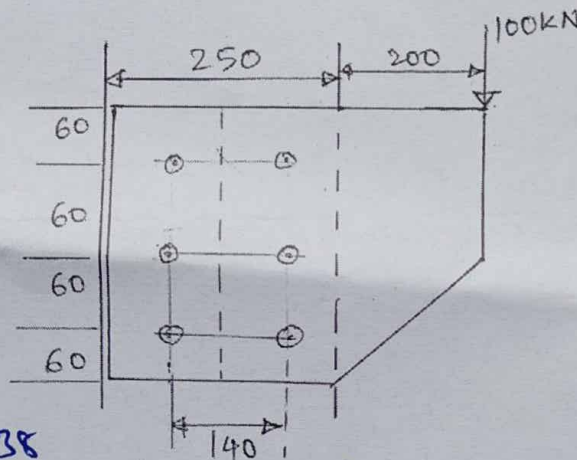

4. (a) Determine the shear and bearing strength of a 20 mm bolt of property class 8·8 connecting 10 mm thick plate as shown in figure below. Given that face for plate is 410 MPa (Shear plane cuts the shank)
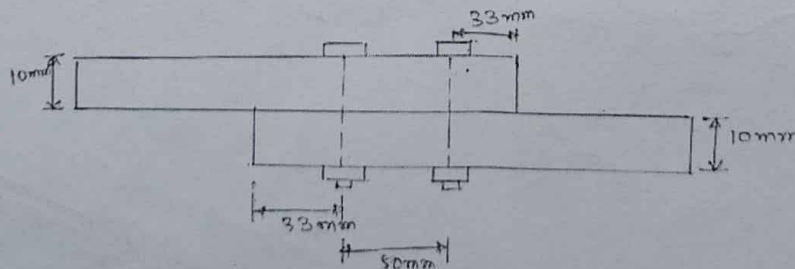
(b) Design a suitable longitudinal fillet weld to connect the plates as shown in figure to transmit a pull equal to the full strength of small plate.   2×8=16

Given: Plates are 12 mm thick grade of plate is Fe410 and welding is to be done in workshop.
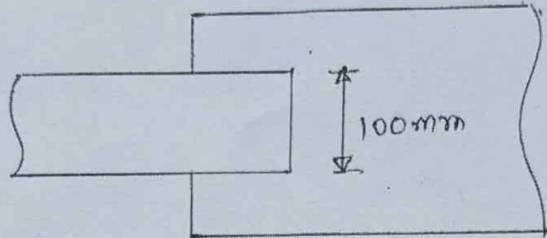
5. (a) Design a slab base for a column 350 @ 67·4 kg/m carrying a factored load of 1000 kN. Also design the welded connection between slab base and column. Use concrete grade M20 and steel of Fe410.

   (b) Define the effective length, slenderness ratio and radius of gyration for the compression member.   2×8=16

6. (a) Differentiate between long column and short column.

   (b) What do you mean by plate girder? Enumerate the various components of plate girders with their function.   6+10=16

7. Write short notes on (Any four):   4×4=16

   (a) Lug Angle

   (b) Gusset Base

   (c) Battening and Lacing

   (d) Pitch and gauge in riveted connection

   (e) Assumptions in plastic method of analysis

   (f) Tension splice