

7a
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Slip No. 1

Exam Seat No.: _____

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

F.S. B.Arch. I Examination

Day : Monday

Date: 19/11/2018

Time : 11.30 a.m. to 2.30 p.m.

SUBJECT : BUILDING MATERIALS (CVL 1103)

- NOTE :** (i) Answers to the two sections must be written in separate answer books
(ii) Figures to the right indicate full marks
(iii) Answers must be to the point.

(Maximum Marks: 100)

SECTION: I

Q.1 Attempt **Any Three** of the following: **(18)**

- (a) Describe different types rocks found in nature with examples.
- (b) Explain how will you decide whether a stone is suitable as a building material?
- (c) Describe the precautions which should be taken for storage of cement
- (d) Which constituents combine together to form a good ordinary cement? Mention them alongwith their functions.

Q.2 Attempt **Any Three** of the following: **(18)**

- (a) Write down the properties of fat lime, hydraulic lime and poor lime in detail.
- (b) Describe how the workability of concrete is measured using the slump test? Also discuss the advantages of this test.
- (c) What are the functions and uses of mortar in construction? Explain what safety measures should be taken while working with mortar?
- (d) Discuss the following in brief:
 - (i) Water-cement ratio
 - (ii) Advantages of Artificial stones
 - (iii) Grades of concrete as per IS 456-2000
- (e) Explain which tests can be done on field to check the quality of cement?

Q.3 (a) State various constituents of glass and describe their functions. **(08)**

(b) Describe classification of glass based on constituents. **(06)**

OR

(b) Explain in detail Safety Glass and Glass Blocks.

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Q.4 Attempt **Any Three** of the following (18)

- (a) Explain difference between soft wood and hard wood.
- (b) Explain briefly following terms :
 - 1. Standing timber
 - 2. Converted
 - 3. Pith
- (c) Explain in detail Exogenous and Endogenous Trees.
- (d) State objectives of preservation of timber and explain requirements of a good preservative.

Q.5 (14)

- (a) Differentiate between Thermo Plastic and Thermosetting Plastic.

OR

- (a) Explain advantages and shortcomings of plastics.
- (b) State from which substances basic raw materials used in manufacturing of plastics are obtained. Also explain functions of Fillers and Plasticizers as constituents of plastics.

Q.6 Attempt **Any Three** of the following (18)

- (a) What is brick? Explain reasons of popularity of bricks as construction material.
- (b) Differentiate between First Class Brick and Fourth Class Brick.
- (c) Write short note on Fire Bricks.
- (d) Explain Flooring Tiles and Glazed Earthenware Tiles in detail.

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Slip No.

Exam seat no:

14/50

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

F. S. B-ARCH-I EXAMINATION

SUBJECT: BUILDING CONSTRUCTION-I (ARC 1108)

Day: WEDNESDAY

Year: 2018-2019

Date: 28 NOV 2018

TIME: 11: 30 A.M. to 02:30 P.M.

Note:

- i. There are two sections. Each section is mandatory to answer.
- ii. Each section is to be answered separately.
- iii. Assume any data if required.

SECTION-1

MAXIMUM MARKS: 50

Q-1 Explain the making of traditional built form. Show the process of making with the sketches. **(attempt any two)**.....(30)

- A. Hut made from thatch in rain forest region
- B. Igloo in Alaskan region
- C. Hut made from mud walls in Dry and Arid region

Q-2 Explain Elements of Built form. **(any Two)**.....(10)

- A. Walls
- B. Roof structures
- C. Explain with sketches: Lintel, Coping, Foundation, One-way slab, Cover in R.C.C.

Q-3 Explain structural systems of building and their design implications.....(10)

SECTION-2

MAXIMUM MARKS: 50

Q-1 Draft plans and Elevation of odd and even course for a 1.5 brick thick 'L' Junction of wall in Flemish bond(15)

Q-2 Discuss the following: **(attempt any Two)**..... (10)

- A. Jointing and Pointing
- B. Garden wall bonds
- C. Measurement system of Bricks

Q-3 Discuss the following: **(any Three)**.....(15)

- A. Classification of Brick by its Shapes and Sizes
- B. Rattrap bond brick work
- C. Characteristics of Good Brick
- D. Uses of Brick

Q-4 What is Brick Bond? General rules of Bonding in Brickwork.....(10)

Slip No.1

Exam Seat No: _____

The Maharaja Sayajirao University of Baroda

F S of B Arch I Examination

Day: Date: Friday November 30 Year: 2018 Time: 11:30 a.m. to 1:30 p.m. Marks: 50

Subject: Technical English Code: ENG 1104 (New Course)

N.B.: i) All questions are compulsory ii) Attempt both sections in separate answerbooks.

Section I

Q. 1. Answer any five of the following briefly:

(10)

- What signs of the approach of spring does Philip Larkin notice in his poem '*Coming*'?
- Name the speaker of the poem '*Last Day of the Summer Term*'.
- Which is the second stage of a man's life in Shakespeare '*All the World's A Stage*'?
- What is the difference between capital punishment and life imprisonment according to the banker in '*The Bet*'?
- Who said the words: 'To live anyhow is better than not at all'?
- Describe the character of Ratan.
- Describe the village of Ulapur in brief.
- Name the poet who wrote '*When I'm Sixty-four*'.

Q.II. Read the passage and work on the tasks given below:

(10)

Ask people whether credit cards are a necessity or a luxury and most would probably term a necessity these days. Credit cards are considered a boon for the ready convenience they confer on the user- you don't have to worry about carrying enough cash when you go shopping or to a restaurant. Just flash your card, sign and walk out. But there are many who criticize credit cards for the 'easy money' syndrome they generate. It is true that many people fall into a debt trap- thanks to the extensive use of their cards. But if you are careful with your expenses, they can be a handy thing to have around. Hence, you need to consider the term 'responsible usage' and understand the actual significance of living on credit. Remember that using a credit card does not mean 'free' credit. In effect, what you are doing is merely postponing payment. While it looks real good to have to pay only one or two thousand a month on your card, remember that you're paying interest on the amount that you 'revolve' from one billing cycle to the next. But there's one precaution we should add. Always settle a credit card bill in full for two good reasons. First and foremost, if you are not able to pay up now, you should not have spent it in the first place. Second, the credit charges tend to be extremely high, ranging from 2% to 3% per month.

There is no shortage of cards on offer. Almost every bank has launched a card; so the biggest hurdle you face is in trying to choose from amongst them. So, how does one choose among the various cards on offer? The factors for choosing a card revolve around certain differentiating features that one card may offer and the others don't, like acceptability, eligibility, fees, other charges, credit period, cash advance, etc. Cards which carry the Master or Visa affiliation are more widely accepted across the country compared to Diners and American Express cards. Similarly, global credit cards are valid even outside India. If you travel regularly within or outside India, these cards would probably suit you the best, due to their acceptability across various outlets. If your credit card is more of a functional accessory while you shop or entertain in your own town, you will want a higher limit. But if you are a value-for-money person who likes the convenience offered by a card, but will alternate between paying by cash and card, you could consider credit cards offered by the public sector banks. Their entry fees are typically lower. Moreover, if you need them, you get longer credit periods and lower credit charges. But you may not get a very high credit limit. Many of us nowadays carry more than one card, and under the circumstances, you could use them to segregate your expenses. For example, if your employer reimburses you for certain travel and entertainment expenses, it would be a good idea to charge

all official expenses to one card and all personal expenses to the other card. This will help you account for your official expenses easily. It's all very well to be a member of the plastic age. Like all good things in life, a credit card privilege has to be enjoyed.

Task A) Say whether the following statements are true or false: (05)

1. Most people think that credit cards are a necessity these days.
2. Credit card is considered a blessing as it offers convenience to the user.
3. Many people oppose credit cards because users can get into the 'easy money' syndrome.
4. Using a credit card means you are paying immediately.
5. The entry fees on credit cards offered by public sector banks are low.

Task B) Identify words from the passage which mean the following: (03)

- | | |
|-------------|---------------|
| 1. blessing | 4. separate |
| 2. regarded | 5. possibly |
| 3. delaying | 6. importance |

Task C) The following words are underlined in the above text. Say what they refer to: (02)

1. their 2. they 3. these 4. Their

Q.III. Read the poem given below and attempt the following questions: (05)

Bangle-sellers are we who bear
Our shining loads to the temple fair.
Who will buy these delicate, bright
Rainbow-tinted circles of light?
Lustrous tokens of radiant lives,
For happy daughters and happy wives.

Some are meet for the maiden's wrist,
Silver and blue as the mountain mist,
Some are flushed like the buds that dream
On the tranquil brow of a woodland stream;
To the limpid glory of new-born leaves.

Some are like fields of sunlit corn,
Meet for a bride on her bridal morn,
Or rich with the hue of her heart's desire,
Tinkling, luminous, tender, and clear,
Like her bridal laughter and bridal tear.

Some are purple and gold-flecked grey,
For her who has journeyed through life mid-way,
Whose hands have cherished, whose love has blest
And cradled fair sons on her faithful breast,
Who serves her household in faithful pride,
And worships the gods at her husband's side.

Sarojini Naidu

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1. Where are the bangle-sellers carrying their wares?
2. 'Rainbow tainted circles of light' mean _____.
[Choose the correct option: a) bangles b) maiden's wrists c) sky]
3. Silver and blue bangles are suitable for _____.
[Choose the correct option: a) brides b) maidens c) middle-aged women]
4. Find the word from the poem which means 'sign or symbol'.
5. Identify word from the poem which means the opposite of 'poor'.

Section II

Q.IV. Write a short paragraph on any one of the following:

(05)

- a) Corruption and India b) Mobile Phone and Taking Selfies c) Health and Fast Foods

Q.V. (A) Identify errors in the following sentences and correct them:

(05)

1. I live in the Park Street in Kolkatta.
2. My sister is going to U S A for higher studies.
3. What beautiful building the library has!
4. We have never had a such hot summer.
5. The family living next door often quarrels among themselves.
6. Nobody, not even the committee members, is here.
7. The earth is moving round the sun.
8. I did not seen him since my return from Australia.
9. He didn't yet completed his assignment.
10. I have an account in this bank.

(B) Match the prefixes and suffixes with the words given and complete the sentences with the newly formed words:

(05)

Suffixes:

-ful / -ly / -y / -ion / -ive / -ible / -ness / -ing / -ment / -al

nation/ agree / charm / frank / sense / excess / exhibit/ guilt/proper / grate

Prefixes:

dis- / im- / un- / mis- / anti- / in- / ir- / il- / over- / re-

charged / patient / cultivated / placed / social / effective / relevant / legal / slept / take

1. They were _____ for the bread we gave them.
2. The dinner was not _____ cooked.
3. He was found _____ of theft and sent to the prison for six months.
4. The countryside looks _____ in spring.
5. There were many fine paintings at the _____.
6. _____ smoking is thought to cause cancer of the lungs.
7. Unless you have something _____ to say, you had better hold your tongue.
8. He certainly seemed to be speaking with complete _____.
9. We hope to come to a general _____ on future action.
10. 15th of August every year is a _____ holiday.
11. I went to bed very late and _____.
12. He got a 14 year sentence for _____ possession of drugs and firearms.
13. The courses I was forced to take were unnecessary and _____.
14. The doctor's therapy was obviously _____.
15. Children nowadays find that reading and writing are indoor, _____ activities.

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16. He was _____ from the hospital last week.
 17. Maya had _____ the handbag.
 18. Most of the land in this part of the country is _____.
 19. The people waiting for the train were getting _____.
 20. If she fails her exam, she can _____ it in the next semester.

Q.VI.(A) Complete the passage with appropriate content words from the list given below. (Do not copy the passage. Indicate the number of the blank and the correct response against it) (05)

royal/ view/ magnificent/ resort/ greenery/ mountains/ beauty/ lakes/ valley/ city

If you have to choose a 1) _____ in Rajasthan which you can visit anytime during the year, the obvious choice is Udaipur. Nestling in a 2) _____ surrounded by the low-rising Aravali Hills, Udaipur has all the attributes of a splendid destination. For its perennially water-filled 3) _____, this city has been likened to Venice. Perhaps the most spontaneous compliment to the 4) _____ of Udaipur came from Emperor George V when he said, "In all Hindustan there is no other picturesque city than that which Udai Singh founded among the 5) _____." In view of the contrast provided by the vast sandy stretches surrounding cities like Jodhpur, Bikaner, Jaisalmer and even Jaipur, the 6) _____ and lakes around Udaipur make it an extremely charming holiday 7) _____. Udaipur is dominated by the 8) _____ City Palace which commands a grand 9) _____ overlooking the Lake Pichola. As you move past the Jagdish temple, you are hardly prepared for the dazzling vision of 10) _____ splendour, the City Palace, hidden behind a cluster of old and high trees.

B) Complete the passage with appropriate function words. (Do not copy the passage. Indicate the number of the blank and the correct response against it) (05)

Apart from the City Palace, Udaipur has quite 1) _____ (a/an/the) few other attractions. Moti Magri is where there 2) _____ (are/am/is) ruins of an ancient fortress which pre-dates the founding of 3) _____ (the/an/a) palace. On the hill stands the equestrian statue 4) _____ (of/to/for) Rana Pratap, Mewar's illustrious hero 5) _____ (who/whose/whom) defied Akbar's armies. From here the view of Fatehsagar Lake 6) _____ (and/any/another) Nehru Park, lying below, is quite breathtaking. However, the most enchanting and unusual views of 7) _____ (the/an/a) lakes and Udaipur city can be obtained 8) _____ (from/for/form) Sajjanganrh palace built atop a 1000 foot hill. Bhartiya Lok Kala Mandal, a folk museum with a magnificent collection of folk and tribal art 9) _____ (is/was/were) another great place to visit. Ahar, only three kilometers from the city is where you can 10) _____ (see/seen/seeing) a cluster of cenotaphs of former rulers.

Slip No.

Exam seat no:

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

F. S. B-ARCH-I EXAMINATION

SUBJECT: BUILDING CONSTRUCTION-I (ARC 1108)

Day: THURSDAY

Year: 2019-2020

Date: 21 NOV 2019

TIME: 11: 30 A.M. to 02:30 P.M.

Note:

- There are two sections. Each section is mandatory to answer.
- Each section is to be answered separately.
- Tie both the sections separately.
- Drawing sheet to be provided for Answering of Section-1
- Assume any data if required.

SECTION-I

MAXIMUM MARKS: 50

Q-1 Explain the making of traditional built form in detail- the entire process of making of it with drawings, sketches and diagrams. **(Attempt any two)** **(30)**

- Machaan structure on an uneven ground plane (CO-1, BT-3)
- Tent structure that can be easily assembled and dismantled (CO-1, BT-3)
- Igloo in Alaskan region (CO-1, BT-3)

Q-2 Explain and draw plan, section, elevation and sketches of the construction process for: **(any two)** **(10)**

- Types of 'Mud walls' in a Dry and Arid region hut structure (CO-1, BT-2)
- Types and Fundamentals of Tiled roof covering (CO-2, BT-1)
- Force diagram of Roof structure made with the flexible bamboo (CO-2, BT-3)

Q-3 (A) Explain through drawings, the weaving process of the thatch while used in a bamboo wall structure **(5)** (CO-2, BT-3)

Q-3 (B) Explain through drawings, Flooring system in a bamboo floor structure **(5)** (CO-2, BT-2)

Slip No.

Exam seat no:

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

F. S. B-ARCH-I EXAMINATION

SUBJECT: BUILDING CONSTRUCTION-I (ARC 1108)

Day: THURSDAY

Year: 2019-2020

Date: 21 NOV 2019

TIME: 11: 30 A.M. to 02:30 P.M.

SECTION-II

MAXIMUM MARKS: 50

Q-4 Explain building Elements in detail (Both are compulsory)(30) (CO-3, BT-1)

- A. Wall
- B. Floors

Q-5 Describe in detail: (Both are compulsory)(10) (CO-2, BT-2)

- Frame structure system of a building and design Implications offered by it.
- One-way and two-way slabs

Q-6 Explain following terminologies with sketches: (Any Five)(10) (CO-1, BT-1)

- A. Roofing system of corrugated sheets
- B. Bracing systems
- C. Foundation
- D. Coping and Damp proofing
- E. Lintel
- F. Deck floor as a Flooring system

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Exam Seat No _____

11/2019.

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

FIRST SEMESTER OF B. ARCH.I EXAMINATION, Nov- - 2019

SOLID GEOMETRY-I (ARC 1107)

DATE: 16-11-2019

TIME: 11.30 to 2.30 PM

TOTAL MARKS: 100 MARKS

- Drawings should be done in drafting like manner using appropriate scale, giving dimensions, sizes and nomenclature.
- Assume suitable data if not given.
- Both the Sections are compulsory to attend.
- Elucidate your answers with proper Presentation, Texts, Nomenclature, hatching and guidelines.
- Figures in the brackets at the end of each question indicate full marks. Total marks 100.
- Tie and submit both sections separately.

SECTION 1:

[50 MARKS]

Q1. Draw orthographic projections for the following

[20 marks] (C01, BT3)

(a) Cuboid measuring 3 cm x 4 cm base and 6 cm height tilted 60° from the Horizontal Plane.

Q2. Draw Axonometric view and Isometric view of a Regular Triangular Prism.

[20 marks] (C02, BT3)

(Dimension of each edge – 5 cm, Axis Height – 5 cm.)

Q3 Draft the Surface Development Diagrams for following:

[10marks]

(a) A regular Octagonal Prism having base edge 4cm each and Axis height 2cm. (C02, BT3)

Or

(b) A regular Octagonal Pyramid having base edge 4cm each and Axis height 6cm. (C02, BT3)

SECTION 2:

[50 MARKS]

Q4. Draw Plan, Elevation and surface development of a circular base cone, base diameter of 6 cm. and height 8 cm. Also draw surface development drawing of the same.

[20 marks] with

(C02, BT3)

Q5. Draw orthographic projections in HP, VP AND EVP for the following

[30 marks] (C02, BT3 & 2)

(a) A regular Pentagonal Pyramid having base edge of 4 cm each side and Axis height 8 cm with its base parallel to HP, 3 cm away from the HP and 3 cm away from VP. Cut at an angle of 45 degrees from the HP(Horizontal Plane), exactly at the mid of the Axis Height. Also draw the sectional profile of the cut object

AND

(b) A regular hexagonal Prism having base edge of 4 cm each side and Axis height 8cm with its base parallel to VP, 2 cm away from the VP and 4 cm away from HP. Cut at an angle of 60 degrees from the VP (Horizontal Plane), exactly at the mid of the Axis Height.

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Exam seat no:

25-a/45

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

S. S. B-ARCH-I EXAMINATION

SUBJECT: BUILDING CONSTRUCTION-II (ARC 1204)

Day: WEDNESDAY

Date: 10 APRIL 2019

Year: 2018-2019

TIME: 11: 30 A.M. to 02:30 P.M.

Note:

- i. There are two sections and both are mandatory.
- ii. Assume any data if required.

MAXIMUM MARKS: 100

SECTION- 1

Q-1 Explain the following terms with sketches. (attempt any Two)(10)

A. Metal sheet roofing system

[CO1, BT-1]

B. Battens, Purlins and Eve board

C. Common Rafter and Principal Rafter

Q-2 Explain with sketches - Truss, Types and Load Transfer System of trusses.

What is the difference between Queen post truss and King post truss? Analyze them in terms of function as well as construction. (20)

[CO4, BT-2]

Q-3 Draft elevation and plans of odd and even course for a T junction, having thickness of

2 bricks and 1 ½ bricks in Flemish bond..... (10)

[CO3, BT-3]

OR

Q-3 Draft elevation and plans of odd and even course for a T junction, having thickness of

1 ½ bricks and 1 brick in English bond..... (10)

[CO3, BT-3]

Q-4- Explain fundamentals of Arches. Discuss different types and load implications in them with sketches. (10)

[CO3, BT-2]

Slip No.

25-6/45

Exam seat no:

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

S. S. B-ARCH-I EXAMINATION

SUBJECT: BUILDING CONSTRUCTION-II (ARC 1204)

Day: WEDNESDAY

Date: 10 APRIL 2019

Year: 2018-2019

TIME: 11: 30 A.M. to 02:30 P.M.

Note:

- i. There are two sections and both are mandatory.
- ii. Assume any data if required.

SECTION- 2

Q-5 Draft the plan, elevation & section of Three centred brick arch having 2500 mm span, resting over 1 ½ th Brick wall. Explain derivation of the centre, calculations for the size and shape of voussiors..... (25)

[CO3-BT-3]

Q-6 Explain all types of Rubble masonry work (10)

[CO2-BT2]

Q-7 Explain with neat sketches (Any Three) (15)

- A. Column and Beams [CO4, BT2]
- B. Metamorphic stones and their uses [CO2, BT1]
- C. concept of Corbelling [CO3, BT2]
- D. Stone cladding wall and different junctions in it [CO2, BT1]

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THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

F. S. B-ARCH-I EXAMINATION SUBJECT: SOLID GEOMETRY (ARC 1107) (1103)
 Day: MONDAY Date: 26 NOV 2018 Year: 2018-2019 TIME: 11:30am to 2:30 pm

Note:

1. There is only one section.
2. Assume any data if required.
3. Scale: 1 Unit = 20 mm

MAXIMUM MARKS: 100

Q-1 Draw the surface development using geometric construction method [C01, B1-3]
 (Attempt ANY ONE from the following).....(15 Marks)

1. Triangular base pyramid of sides admeasuring 3 units and height of 5 units.
2. Pentagonal prism of sides admeasuring 3 units and height of 8 units

Q-2 Draw plan, elevation and surface development of a cone. The diameter of the circular base of the cone is 4 units and height is 8 units..... (10 marks) [C04, B1-2]

Q-3 Draw orthographic projection of a rectangular plane of 5 x 8 units, kept in such a way that the longer side is making an angle of 30° with the HP. The plane is perpendicular to VP and parallel to EVP.....(15 marks) [C03, B1-2]

- Distance from
 HP- 3 units
 VP- 2 units
 EVP- 2 units

Q-4 Draw Pentagonal pyramid of side 3 units and height of 6 units. Cut it with a plane [C03, B1-2]
 forming 45° with HP at half the distance from apex. The pentagon has one side parallel to VP and its base is parallel to HP. Draw orthographic projections in HP, VP and EVP.

.....(30 marks)

- Distance from
 HP- 3 units
 VP- 2 units
 EVP- 2 units

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Slip No. 2

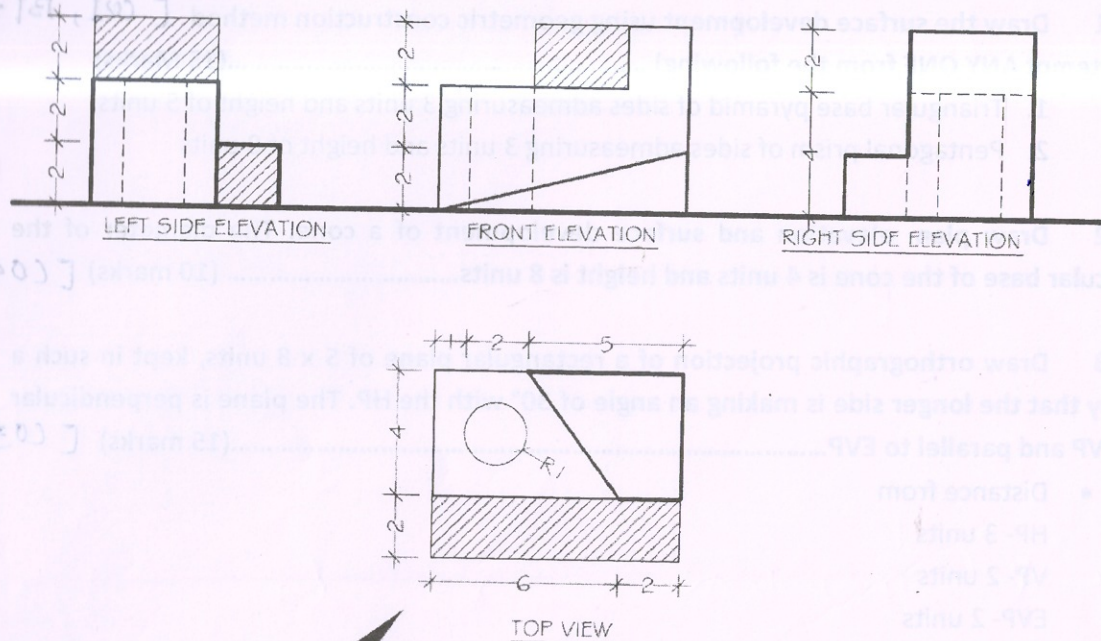
Exam seat no:-----

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

F. S. B-ARCH-I EXAMINATION SUBJECT: SOLID GEOMETRY (ARC 1107) 1103)
Day: MONDAY Date: 26 NOV 2018 Year: 2018-2019 TIME: 11:30am to 2:30 pm

Q-5 Draw Isometric and Axonometric view of the following object.....(30 marks)

[CO4, BT-3]



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Exam seat no:

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THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

F. S. B-ARCH-I EXAMINATION

SUBJECT: BUILDING CONSTRUCTION-I (ARC 1108)

Day: WEDNESDAY

Year: 2018-2019

Date: 28 NOV 2018

TIME: 11: 30 A.M. to 02:30 P.M.

Note:

- i. There are two sections. Each section is mandatory to answer.
- ii. Each section is to be answered separately.
- iii. Assume any data if required.

SECTION-1

MAXIMUM MARKS: 50

Q-1 Explain the making of traditional built form. Show the process of making with the sketches. (attempt any two).....(30) (CO-1, BT-2)

- A. Hut made from thatch in rain forest region
- B. Igloo in Alaskan region
- C. Hut made from mud walls in Dry and Arid region

Q-2 Explain Elements of Built form. (any Two).....(10) (CO-3, BT-2)

- A. Walls
- B. Roof structures
- C. Explain with sketches: Lintel, Coping, Foundation, One-way slab, Cover in R.C.C.

Q-3 Explain structural systems of building and their design implications.....(10) (CO-2, BT-4)

SECTION-2

MAXIMUM MARKS: 50

Q-1 Draft plans and Elevation of odd and even course for a 1.5 brick thick 'L' Junction of wall in Flemish bond(15) (CO-3, BT-1)

Q-2 Discuss the following: (attempt any Two).....(10) (CO-3, BT-1)

- A. Jointing and Pointing
- B. Garden wall bonds
- C. Measurement system of Bricks

Q-3 Discuss the following: (any Three).....(15) (CO-3, BT-2)

- A. Classification of Brick by its Shapes and Sizes
- B. Rattrap bond brick work
- C. Characteristics of Good Brick
- D. Uses of Brick

Q-4 What is Brick Bond? General rules of Bonding in Brickwork.....(10) (CO-2, BT-1)

Slip No.

33-a
50

Exam seat no:

MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

S.S. B-ARCH-I EXAMINATION

Day: THURSDAY

Date: 04 APRIL 2019

Year: 2018-2019

TIME: 11:30 A.M. to 02:30 P.M.

MAXIMUM MARKS: 100

SUBJECT: SCIOGRAPHY PERSPECTIVE (ARC 1205)

Note:

- Assume any data if required.
- There are two sections and both are mandatory.

SECTION-1

Maximum Marks= 50

Q-1 Draw sciography of the following (attempt any two)

(20)

The light source is from left upper corner at 45° with HP and VP both.

[CO-3, BT-3]

- Draw sciography of a Regular hexagonal plane having sides of 4 cm, perpendicular to H.P. and parallel to V.P. Its distances from
H.P. = 2 cm
V.P. = 4 cm
- Draw sciography of a Rectangular plane 6 X 3 cm sides perpendicular to V.P. and forming 30° angle with H.P. Its distances from
H.P. = 6 cm
V.P. = 3 cm
- Draw sciography of a circular plane of 4 cm radius, perpendicular to H.P. and parallel to V.P.
Its distances from
H.P. = 1 cm
V.P. = 10 cm

Q-2 Draw sciography of the following (attempt any one)

(10)

The light source is from left upper corner at 45° with HP and VP both.

[CO-3, BT-3]

- A Cube having regular side of 6 cm.
6 cm above H.P. and one of its surface is having 45° angle with HP and is perpendicular to V.P. It is 6 cm away from V.P. Draw sciography of it.

Slip No.

93-b
50

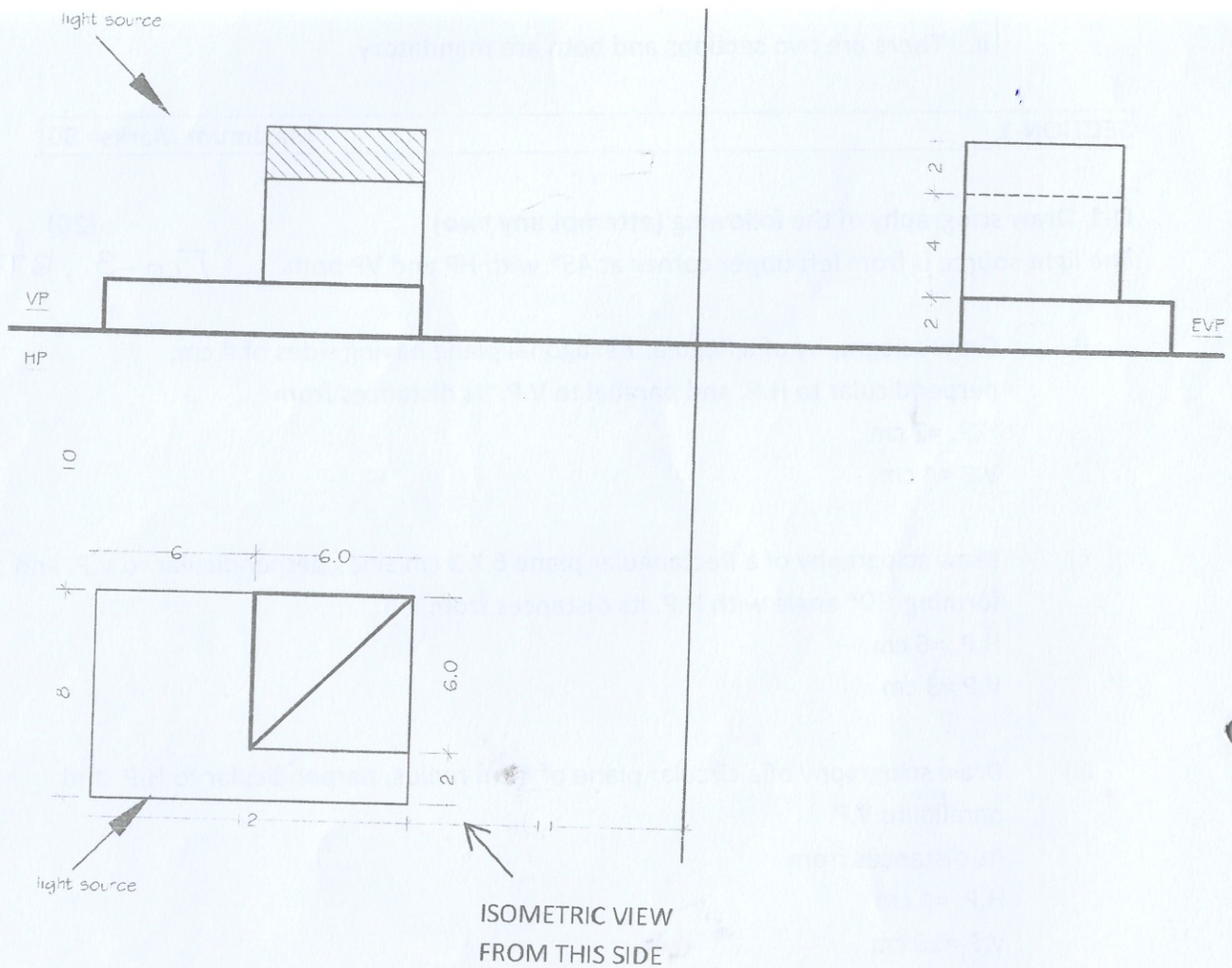
Exam seat no:

- ii) A cone of 6 cm diameter and 8 cm height, 10 cm above ground and base is attached with V.P. the axis is perpendicular to V.P. Draw sciography of it.

Q-3 Draw sciography of the object in given Views and draw isometric view.
all dimensions are in cms.

(20)

[CO-3, BT-3]



Slip No.

33-C
50

Exam seat no:

MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

S.S. B-ARCH-I EXAMINATION

Day: THURSDAY

Date: 04 APRIL 2019

Year: 2018-2019

TIME: 11:30 A.M. to 02:30 P.M.

MAXIMUM MARKS: 100

SUBJECT: SCIOGRAPHY PERSPECTIVE (ARC 1205)

Note:

- Assume any data if required.
- There are two sections and both are mandatory.

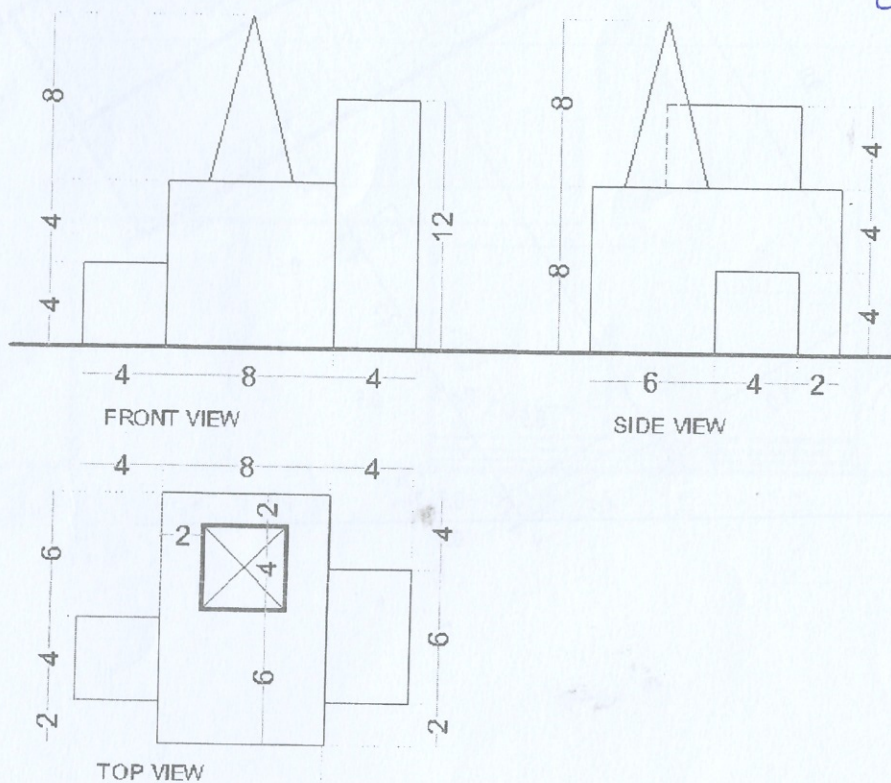
SECTION-2

Maximum Marks= 50

Q4: Draw a one point perspective of the given figure in 1:100 scale
Maintain all construction lines

(20)

[CO-2, BT-6]



PP

EL = 6.0

VP is in line with SP,

SP is 24 units away from PP.

Slip No.

33-
50

Exam seat no:

Q5: Draw a two point perspective of the given drawing.

(30)

[10-2, BT-3]

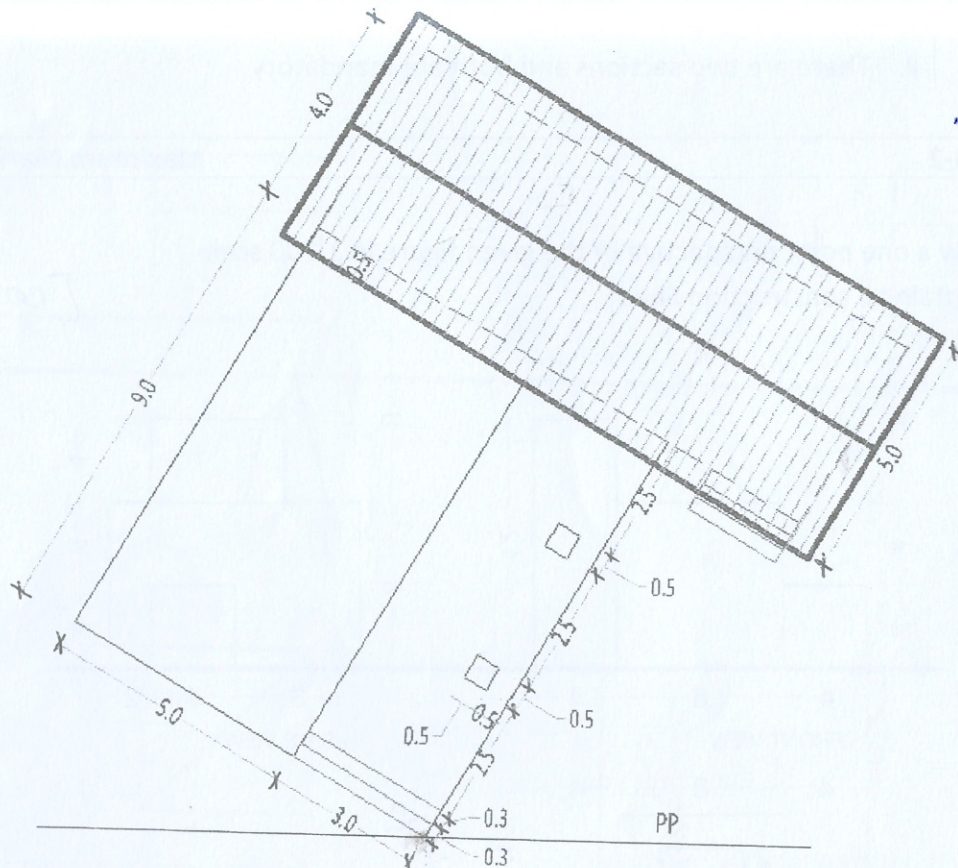
Maintain all construction lines.

Station Point is 10 unit away from the Picture Plane.

HL (EL) = 7 unit from Ground Line.

Station point is 10 units away from PP

(1 Unit = 10 mm)

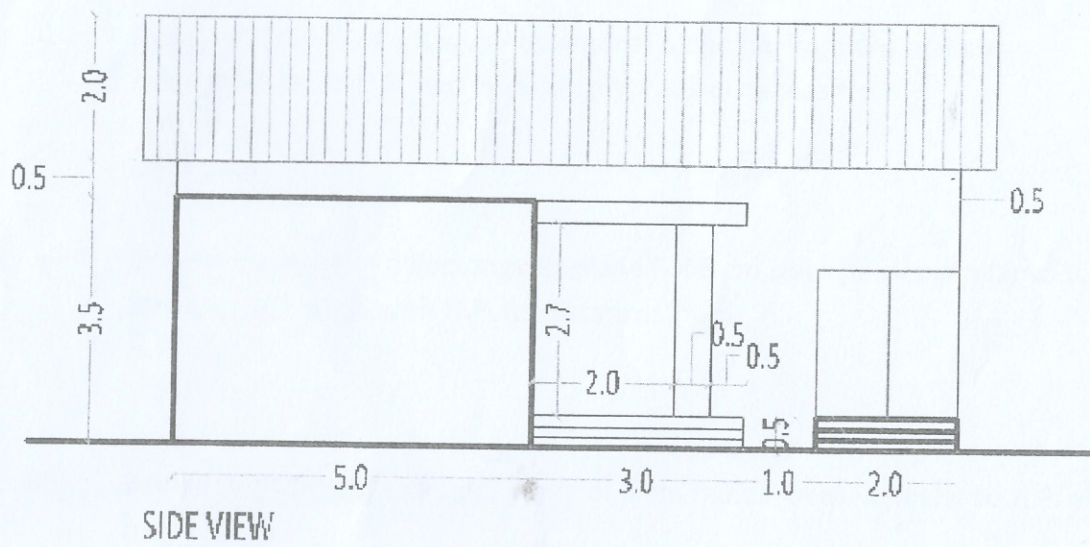
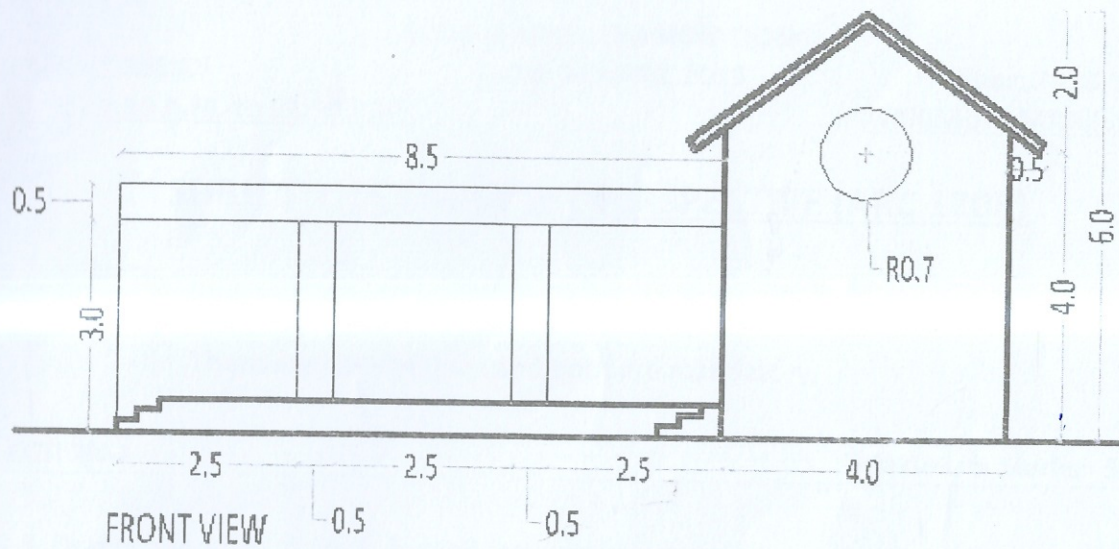


SP

Slip No.

33-e
50

Exam seat no:



Slip No : 01/04

Exam Seat No: _____

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

SECOND SEMESTER OF B. Arch I EXAMINATION

Day: Thursday Date: 7th July Year: 2022 Time: 11.30 am to 2.30 pm

SUBJECT: SURVEYING AND LEVELLING (NC) (CVL 1207)

NOTE: (i) Answer TWO sections separately.

(ii) Figures to the right indicate full marks.

(iii) Draw neat sketches where required.

(iv) Assume suitable data if required.

Maximum Marks: 100

SECTION-I

- Q.1 (a)** Select the correct answer form the given options for following questions (15*1)
(15)
[C1B2]
- 1) In which of the following type of surveying only linear measurements are made? [C1B2]
(a) Auto Level (b) Theodolite Surveying
(c) Chain Surveying (d) Contouring
 - 2) Which of the following classification of surveying is based on the instrument used? [C1B2]
(a) Traverse Surveying (b) Cadastral Surveying
(c) Topographic Surveying (d) Hydrographic Surveying
 - 3) Which of the following is not required for chain surveying? [C2B2]
(a) Auto level (b) Pegs (c) Arrows (d) Metric chain
 - 4) Which of the following type of ranging is done if both ends of surveying lines are visible? [C3B2]
(a) Indirect (b) Reciprocal (c) Unable to do (d) Direct
 - 5) In which of the following type of surveying the mean surface of the earth is considered as a plane and the spheroidal shape is neglected? [C1B2]
(a) Plane Surveying (b) Geodetic Surveying
(c) Topographic Surveying (d) Hydrographic Surveying
 - 6) Determining points of strategic importance are called as [C1B2]
(a) Traverse Surveying (b) Military Surveying
(c) City Surveying (d) Topographic Surveying
 - 7) Which of the following processes has more accuracy in its output? [C2B2]
(a) Plane table Surveying (b) Chain Surveying
(c) Compass Surveying (d) Total Station
 - 8) Which of the following is the principle of surveying? [C1B1]
(a) Covering the entire area
(b) Working from whole to part
(c) Taking measurements
(d) Determining the elevation differences
 - 9) Which of the following chains was originally used for land measurement with a length of 66 feet? [C2B1]
(a) Metric Chain (b) Engineer's Chain
(c) Gunter's Chain (d) Revenue Chain
 - 10) Which of the following branch of surveying is used to find the elevations of given points with respect to given or assumed datum? [C1B2]
(a) Traversing (b) Contouring (c) Leveling (d) Plane Table Surveying
 - 11) In a Prismatic compass, the zero is marked on the [C2B1]
(a) North end (b) South end (c) West end (d) East end
 - 12) Open traverse is suitable in the survey of [C1B2]
(a) Ponds (b) Lakes (c) Rivers (d) Residential buildings
 - 13) The True Meridian passes through [C1B2]
(a) Geographical poles (b) Magnetic poles
(c) Arbitrary poles (d) Global poles

[PTO]

- 14) In a surveyor's compass, the rings are graduated from [C2B1]
 (a) 0 to 270 (b) 0 to 180 (c) 0 to 360 (d) 0 to 90
- 15) In the Whole Circle Bearing system, a line is said to be free from local attraction [C3B2]
 if the difference between the fore bearing (FB) and back bearing (BB) is
 (a) 0 (b) 180 (c) 90 (d) 360

- Q.1** (b) Select the correct answer form the given options for following questions (5*2)
 (10)
 [C1B2]
- Surveying is carried out
 (a) To find the elevations of given points with respect to given or assumed datum
 (b) To shows the relative positions of the objects on the surface of the earth
 (c) To find the elevation of points having the same contour interval
 (d) All of the above mentioned [C2B1]
 - Number of links in 30 m metric chain is [C2B2]
 (a) 100 (b) 80 (c) 150 (d) 360
 - Local attraction in compass surveying may exist due to
 (a) Incorrect levelling of the magnetic needle
 (b) Loss of magnetism of the needle
 (c) Friction of the needle at the pivot
 (d) Presence of magnetic substances near the instrument [C3B4]
 - Convert the Whole Circle Bearing Reading (WCB) to Quadrantal Bearing (QB),
 WCB of AB = $210^{\circ} 15'$
 (a) N $45^{\circ} 30'$ E (b) S $54^{\circ} 15'$ E (c) S $30^{\circ} 15'$ W (d) N $39^{\circ} 30'$ W [C3B4]
 - Convert the Quadrantal Bearing (QB) to Whole Circle Bearing (WCB), QB of
 AB = N $26^{\circ} 45'$ E
 (a) $216^{\circ} 30'$ (b) $136^{\circ} 30'$ (c) $26^{\circ} 45'$ (d) $319^{\circ} 45'$

- Q.2** Answer the followings: (Any Four) (4*3)
 (12)
 [C1B2]
- Briefly explain the objectives of surveying. [C1B2]
 - Differentiate between plain surveying and geodetic surveying. [C2B2]
 - Define ranging. Explain indirect ranging. [C2B2]
 - What is offset? Explain perpendicular offset. [C1B2]
 - Explain the terms True Meridian and Magnetic Meridian

- Q.3** (a) Answer the followings: (08)
 i) Briefly explain the classification of surveying. [C1B2]
 ii) Mention the principles of surveying and explain it with proper example. [C1B3]

OR

- (a) Find the angle AOB if (08)
 [C3B4]
- Bearing of OA = 45° and bearing of OB = 112°
 - Bearing of OA = 16° and bearing of OB = 174°
 - Bearing of OA = 127° and bearing of OB = 208°
 - Bearing of OA = 275° and bearing of OB = 342°
- (b) Explain with diagram the difference between Whole Circle Bearing (WCB) and Quadrantal Bearing (QB) and mention the conversion from WCB to QB (05)
 [C3B2]

SECTION-II

- Q.4** Select the correct answer form the given options for following question: (25*1)
(25)
- 1) The U fork and plumb bob are required in plane table survey for [C2B1]
(a) Levelling (b) Centering (c) Orientation (d) Back Sighting
 - 2) In plane table surveying inaccessible points may be located by the [C1B2]
(a) Intersection (b) Radiation (c) Resection (d) Traversing
 - 3) The principle of plane table survey is [C1B2]
(a) Traversing (b) Triangulation (c) Parallelism (d) Property of isosceles triangle
 - 4) The plane table map cannot be plotted to a different scale, as there is no [C4B2]
(a) Log book (b) Level book (c) Field book (d) Data book
 - 5) The surface of still water is considered to be [C4B2]
(a) Level (b) Horizontal (c) Undulating (d) Smooth
 - 6) The surface tangential to a level surface is said to be [C4B2]
(a) Vertical Surface (b) Oblique Surface
(c) Ground Surface (d) Horizontal Surface
 - 7) The line of collimation and the axis of the telescope should [C2B2]
(a) Coincide (b) Be Parallel
(c) Be Perpendicular (d) Inclined at 45 degrees
 - 8) The staff reading taken on a point of known elevation is termed as [C2B2]
(a) Foresight reading (b) Backsight reading
(c) True reading (d) Intermediate sight reading
 - 9) By arithmetical check in levelling, we can ensure the accuracy of [C3B2]
(a) Field work (b) Calculation
(c) Plotting of Map (d) Angles measured
 - 10) The bench mark fixed at the end of day's work is called is [C2B2]
(a) Permanent benchmark (b) Arbitrary benchmark
(c) Temporary benchmark (d) GTS benchmark
 - 11) To eliminate collimation error, the levelling instrument must be placed [C2B2]
(a) Near the backsight (b) Near the intermediate sight
(c) Near the foresight (d) Exactly midway between backsight & foresight
 - 12) In plane table surveying an alidade is used for [C2B2]
(a) Centering (b) Orientation (c) Drawing lines (d) Focusing
 - 13) The north line of the map is marked on the [C4B1]
(a) Right hand bottom corner (b) Left hand top corner
(c) Right hand top corner (d) Left hand bottom corner
 - 14) The real image of the object is formed [C2B2]
(a) In the plane of cross hairs (b) At the center of eye piece
(c) At the center of telescope (d) At the bottom of eye piece
 - 15) The first sight in levelling operation is [C2B1]
(a) Backsight (b) Foresight (c) Intermediate sight (d) Long sight
 - 16) The line joining points of equal elevation is known as a [C4B2]
(a) Horizontal line (b) Vertical line (c) Contour line (d) Level line
 - 17) The vertical distance between two adjacent contour lines is called a [C4B2]
(a) Contour gradient (b) Vertical equivalent
(c) Contour interval (d) Horizontal equivalent
 - 18) A contour line intersects a ridge line or valley line [C4B2]
(a) Obliquely (b) Perpendicularly (c) Vertically (d) Horizontally
 - 19) The contour interval for a particular map is [C4B2]
(a) Kept constant (b) Kept decreasing throughout
(c) Made variable (d) Kept increasing throughout

a-27/55

- 20) When contour line touches one another at a particular zone, it indicates a [C4B2]
 (a) Level surface (b) Vertical or Overhanging cliff
 (c) Horizontal surface (d) Inclined surface
- 21) When lower values are inside the loop of the contour, it indicates [C4B2]
 (a) High ground (b) Vertical wall
 (c) Level ground (d) Valley or depression
- 22) When the higher values are inside the loop of the contour, it indicates [C4B2]
 (a) Hill (b) Pond (c) Sloping ground (d) Level ground
- 23) The contour interval is inversely proportional to the [C4B2]
 (a) Steepness of the area (b) Extent of the area
 (c) Scale of the map (d) Water table of the area
- 24) Fine adjustment in a Theodolite is done by the [C2B1]
 (a) Focusing Screw (b) Tangent Screw
 (c) Clamp Screw (d) Foot Screw
- 25) A theodolite in which the telescope can be revolve through a complete revolution [C2B1]
 in a vertical plane is known as
 (a) Non transit theodolite (b) Tilting Theodolite
 (c) Transit Theodolite (d) Non tilting Theodolite

- Q.5 Answer the followings: (Any Four) (4*3) (12)
- (i) Enlist at least two advantages and disadvantages of Plane Table Survey (PTS). [C1B2]
 (ii) Explain the use of Alidade, Spirit Level and U Fork in Plane Table Surveying. [C2B1]
 (iii) Define Contour and state at least three uses of contours. [C4B2]
 (iv) Mention at least three differences between Height of Instrument Method (HI) and [C3B2]
 Rise and Fall Method.
 (v) Enlist at least three purposes of Theodolite [C2B2]

- Q.6 (a) Answer the followings: (08)
- i) Explain the principle of Plane Table Surveying and enlist the accessories used [C1B2]
 in Plane Table Surveying.
 ii) Explain the temporary adjustments of Theodolite and why it is essential to do [C2B2]
 temporary adjustments?

OR

- (a) The following consecutive readings were taken with a dumpy level along with a [C3B4]
 chain line at a common interval of 15m. The first reading was at a chainage of 165m
 where the RL is 98.085 The instrument was shifted after the 4th and the 9th readings.
 The readings are 3.150, 2.245, 1.125, 0.860, 3.125, 2.760, 1.835, 1.470, 1.965,
 1.225, 2.390 and 3.035 m
 Find the RL of all the points by: HI method and Rise & Fall method. (08)
- (b) Explain the objectives and mention the uses of Levelling [C1B3]
 (05)

— X —

19-9/55

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

REGULAR -FoTE [ENG-SSBARCH-I-2021-22]

SEMESTER END EXAMINATION – JULY 2022

COMMUNICATION SKILLS

[Course Code: ENG1221]

Saturday, 02 July 2022

Marks: 50

Time: 11:30 am - 2:30 pm

Q.I Choose the correct answers from the given multiple options: 25 x 1 = 25

- (1) Which one of the following is not a characteristic of communication?
(a) Objective in nature (b) Includes Skills (c) Just expressing (d) Not a one-way process
- (2) Which one of the following functions of communication serves to relate activities to cooperate, coordinate unified efforts for mutual welfare?
(a) Integrative (b) Informative (c) Instructive (d) Motivational
- (3) Which of the following aspects is not a part of audience analysis?
(a) Age (b) Financial background (c) Experience (d) Designation
- (4) The message of the communication should not be:
(a) Objective Oriented (b) Correct (c) Complete (d) Ambiguous
- (5) On the basis of organisational structure, the types of communication are
(a) Formal and Informa (b) Verbal and non-verbal (c) Interpersonal and Intrapersonal (d) Direct- Indirect
- (6) The interchange of information is done through pre-defined channels in
(a) Informal communication (b) Formal Communication (c) Cluster chain communication (d) Gossip chain communication
- (7) Physiological barriers to communication are related to a person's
(a) Health and fitness (b) Physical environment (c) Psyche (d) Speaking disabilities only
- (8) Differences in way of looking at things of people may result in
(a) Psychological barriers (b) Visual barriers (c) Biological barriers (d) Physical barriers
- (9) The belief that what we practice in our culture is right and superior as to other cultures is known as:
(a) Xenocentrism (b) Ethnocentrism (c) Egocentrism (d) Relativism
- (10) The concept related to body movements in communication skills is known as:
(a) Kinesics (b) Kinetics (c) Chronemics (d) Chrononemics
- (11) The science of study of movements, behaviour, gaze of eyes, and all the eye-related non-verbal communication is called _____.
(a) Kinesics (b) Oculesics (c) Chronemics (d) Haptics

19-6/55

(12) Public space in space language in non-verbal communication ranges from:
(a) Within eighteen inches (b) Eighteen inches to four feet (c) Twelve feet and beyond (d) Four feet to twelve feet

(13) A pat on the back to appreciate your classmate who has performed well in exams is an example of which of the following:
(a) Kinesics (b) Haptics (c) Chronemics (d) Vocalics

(14) What is grapevine?
(a) Formal communication (b) Informal communication (c) Upward communication (d) Interpersonal communication

(15) Which of the followings is not one of the operations of listening process?
(a) Hearing (b) Understanding (c) Regaining (d) Recalling

(16) Listening on the basis of pre-existing notions, likes and dislikes, and biasness of the listener is known as:

(a) Empathetic listening (b) Passive listening (c) Active listening (d) Projective listening

(17) The listener puts himself/herself in the position of the speaker and tries to understand the view point of the speaker, such type of listening is known as:

(a) Empathetic listening (b) Passive listening (c) Active listening (d) Projective listening

(18) In which stage the listener assesses the information they have received?

(a) Responding (b) Evaluating (c) Understanding (d) Remembering

(19) _____ is actively listening to what the speaker is saying, while analysing, judging and forming an individual opinion on the information that is being presented.

(a) Appreciative listening (b) Critical listening (c) Fake Listening (d) Projective Listening

(20) Enclosure in written communication means:

(a) Closing the piece of writing (b) Envelop in which the papers are put (c) A list of documents attached (d) A list of issues mentioned

(21) elaboration and clarification of concepts, reviewing performances, decision making, solving problems can be done through:

(a) Debates (b) Conferences (c) Seminars (d) Meetings

(22) While conducting a meeting, which of the following point is not essential:

(a) Specifying clear agenda (b) Taking care of minutes to be taken (c) Notice of the meeting should be sent in time (d) Time limit should not be specified for particular agenda and sub-agenda

(23) BCC in email writing refers to:

(a) Black Carbon Copy (b) Blind Carbon Copy (c) Blue Carried Copy (d) Blind Carried Copy

(24) The process of communication is a _____.

(a) Three-tier cycle (b) Multi-level hierarchy (c) Two-way process (d) Single strand chain

19-C/55

(25) Indirect feedback means:

- (a) Indirect use of language to give feedback (b) Using only non-verbal communication to give feedback (c) Giving wrong feedback (d) Giving feedback through the involvement of other party

Q.II Short answer type questions: (any five)

5 x 3 = 15

- (1) Define organizational communication and mention various types of information flows in organizational communication.
- (2) Explain Technical Communication with suitable examples.
- (3) What are notice, agenda and minutes?
- (4) What is communication? Discuss its significance in the context of employability.
- (5) What are Gender Barriers? Give some examples.
- (6) Describe the types of listening on the basis of purposes and objectives.

Q.III Long answer type questions:

2 x 5 = 10

- (1) You are willing to organize a workshop with your team of ten on 'Architectural Tools, their Advancement and Use Today' as a final year student of Bachelor of Architecture. Write a letter to the Head of your department seeking permission to organize the workshop and requesting to provide the facilities required for the same.

OR

You are Kiran/ Karan of First year of Bachelor of Architecture and you are concerned with the physical condition of classes of your university. Write a letter of complaint to the Dean of your faculty explaining about the poor condition of your classes.

- (2) What is report writing? What are different types of report writing.

OR

Write any eight elements of long report and explain them.

.....

12-9/55

Exam Seat No. _____

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

S. S. OF B. ARCH. I – EXTERNAL EXAMINATION, June – 2022

Building Material and Construction II (ARC 1207) (New Course)

DATE: 09/07/2022

TIME: 11.30 am to 1.30 pm

TOTAL MARKS: 50 MARKS

Notes:

- I. Assume additional data/information if required.
- II. Figure to the right indicates full marks.
- III. CO number indicates Course Outcomes from the subject syllabus.
- IV. BT number indicates Bloom's Taxonomy Level BT Level:
1-Remember 2-Understand 3-Apply 4-Analyze 5-Evaluate 6-Create

Course Outcome (CO):

- CO 1 Students will understand the building as a structural system.
- CO 2 Understanding of the various building elements, their functions and their working detail drawings.
- CO 3 Construction techniques and use of different building material with their intrinsic relationship to structural systems and environmental performance.

SECTION 1:

[25 MARKS]

Q. 1. MCQs (02 Marks Each)

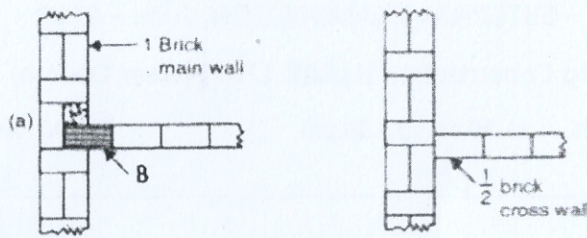
12 Marks

1. A connection between a main wall and partition wall is termed as _____ [02 Marks]
[CO 2, BT 1]
a) Bond
b) Joint
c) Junction
d) Bed
2. _____ form of quoin is formed when two walls meet at an angle of 90°. [02 Marks]
[CO 3, BT 1]
a) Square quoin
b) Squint quoin
c) Acute quoin
d) Obtuse quoin

12-6/55

3. Identify the given figure below.

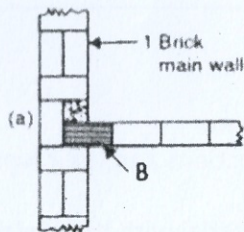
[02 Marks]
[CO 2, BT 2]



- a) Tee junction in double Flemish bond.
b) Tee Junction in single Flemish bond.
c) Cross Junction in Flemish bond
d) Cross Junction in English Bond

4. What is 'B' in the figure?

[02 Marks]
[CO 2, BT 2]



- a) King closer.
b) Queen closer.
c) Quoin.
d) Tie Brick.

5. For cross junction – 'One of the courses is continuous and course at right angles butts against it.'

[02 Marks]
[CO 2, BT 1]

- a) True
b) False

6. A wall which is a low or dwarf wall built along the edge of the roof, terrace, walkway, balcony etc. is called _____.

[02 Marks]
[CO 2, BT 1]

- a) Parapet wall
b) Partition wall
c) Cavity wall
d) Party wall

12-0155

Q. 2. Short Questions (3 Marks each) 06 Marks

A. Make proportional sketch of Tee Junction English bond with External wall one brick thick and internal as partition wall. [03 Marks]
[CO 3, BT 2]

B. Explain in brief the following terms: [03 Marks]
[CO 2, BT 1]

i. Coping

ii. Bracket

OR

B. Explain in brief with help of sketches about the site visit for frame and load bearing structures. [03 Marks]
[CO 3, BT 2]

Q. 3. Long Questions (Any one) 07 Marks

A. Sketch in proportion the wall section of Jaisingh Rao Library with proper terminologies. [07 Marks]
(4 Marks) [CO 2, BT 2]

Discuss the materials used in the construction. (3 Marks)

OR

A. a. Define Plinth and its Uses with sketches. (2 Marks) [07 Marks]

b. Define Plinth beam and ground beam and differentiate between them. (2 Marks)
[CO 2 & 3, BT 3]

c. Make proportional sketch of Cross Junction English bond between one brick and one and a half brick thick wall. (3 Marks)

12-d/55

SECTION 2:

[25 MARKS]

Q. 1. MCQs (02 Marks Each)

12 Marks

1. The continuous groove provided below the RCC chhajjah from rain water protection is called_____.

[02 Marks]
[CO 2, BT 1]

- A. Riser
- B. Drip Mould
- C. Stand
- D. Plate

2. Identify the correct sequence for load transfer in a building?

[02 Marks]
[CO 2, BT 2]

- A. Beam > Slab > foundation
- B. Footing > column
- C. Slab > beam > column > foundation
- D. Column > Beam > Slab > Footing

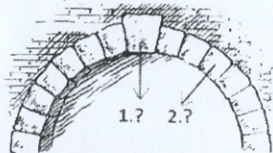
3. Which is the cantilevered element?

[02 Marks]
[CO 2, BT 1]

- A. Steps
- B. Plinth
- C. Chhajjah
- D. Tread

4. Identify the terminologies.

[02 Marks]
[CO 2, BT 1]



- A. 1. Intrados and 2. Extrados
- B. 1. Key-stone and 2. Voussoir
- C. 1. Skewback and 2. Soffit
- D. 1. Haunch and 2. Impost

5. Rose Window looks similar to.....

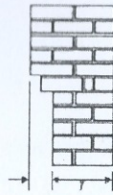
[02 Marks]
[CO 2, BT 1]

- A. Segmental arch
- B. Semi-circular arch
- C. Horse shoe arch
- D. Bull's eye arch

12-09/55

6. The given figure shows.....

[02 Marks]
[CO 1, BT 2]



- A. Haunch
- B. Impost
- C. Corbelling
- D. Quoin

Q. 2. Short Questions (03 Marks each)

06 Marks

- A. Make a proportional sketch of a Pointed Arch constructed in Stone and write all the terminologies and standard dimensions.

[03 Marks]
[CO 2, BT 2]

- B. Explain importance of following architectural elements.
- i. Beam
 - ii. Key Stone of an Arch
 - iii. Abutment

[03 Marks]
[CO 2, BT 3]

OR

- B. Differentiate between frame structure construction and load bearing construction.

[03 Marks]
[CO 1, BT 4]

Q. 3. Long Questions (Any One)

07 Marks

- A. Explain the concept of Corbelling with a sketch. (4 Marks)

[07 Marks]
[CO 2, BT 2]

Draw an elevation of pointed arch supported by brick corbelling and write standard dimensions. (3 Marks)

OR

- A. Design and draft a Segmental arch for an opening door of 1.5 m in width. Take height 2.5 m. wall thickness 350 mm. Show all the terminologies and dimensions.

[07 Marks]
[CO 2 & 3,
BT 3]

Plan (4 marks) and Elevation (3 Marks)

***** END *****

SUBJECT : APPLIED MECHANICS (APM1203)

- Note: (1) Figures to the right indicate full marks.
 (2) Assume suitable data if necessary.
 (3) CX & BX indicate Course Outcome and Bloom Taxonomy level respectively.

MAXIMUM MARKS: 100

Section-I

Q1. Answer the following multiple choice type questions.

[25]

Marks CO,BT

- | | |
|---|---|
| <p>1. Branch of mechanics that deals with body at rest is
 (a) dynamics (b) kinetics (c) statics (d) kinematics</p> <p>2. The force polygon representing a set of forces in equilibrium is a
 (a) Triangle (b) Open polygon (c) Closed polygon (d) Parallelogram</p> <p>3. If the forces are in a same plane but not meeting or origination from the same point, then system is called
 (a) Coplanar Non concurrent (c) Non concurrent
 (b) Non coplanar Concurrent (d) Non coplanar</p> <p>4. Which are the characteristics of a force by which it can be fully represented?
 1. Magnitude and direction 2. Point of application 3. Nature
 (a) 1, 2 and 3 (b) 1 and 2 (c) 1 and 3 (d) Only 1</p> <p>5. If two forces of magnitude P, are acting at an angle of 90, what will be the magnitude of resultant force?
 (a) P (b) 2P (c) 1.41P (d) 0.707P</p> <p>6. What is the angle between two coplanar concurrent equal forces P when their resultant is equal to 1.5P?
 (a) 45° (b) 82.82° (c) 41.41° (d) 85°</p> <p>7. If the arm of a couple is doubled, its moment will
 (a) be halved (b) remain the same (c) be doubled (d) be four times</p> <p>8. The difference between number of unknown reaction components and the number of available equilibrium equations is
 (a) Degree of displacement (b) Degree of indeterminacy
 (c) Degree of determinacy (d) Degree of freedom</p> <p>9. Reaction of a roller support is always
 (a) Parallel to rolling direction (c) Depends on the direction of loading
 (b) Perpendicular to rolling direction (d) Perpendicular to the direction loading</p> <p>10. If a body in equilibrium condition is acted upon by three forces at three points, then the line of action of these forces should be
 (a) Always concurrent (c) Collinear
 (b) Concurrent or parallel (d) Always parallel</p> <p>11. Varignon's theorem is used to find
 (a) Direction of resultant force (c) Magnitude of resultant force
 (b) Location of resultant force (d) Nature of resultant force</p> <p>12. If the sum of all the forces acting on a body is zero, then the body may be in equilibrium provided the forces are
 (a) Concurrent (b) Parallel (c) Like parallel (d) Unlike parallel</p> <p>13. How many reactions will be offered by a hinge support if the load acting on a simply supported beam is vertical.
 (a) 1 (b) 2 (c) 3 (d) 0</p> <p>14. If a plane truss is to be internally determinate,
 (a) $2j = m - 3$ (b) $m < 2j - 3$ (c) $m > 2j - 3$ (d) $m = 2j - 3$</p> <p>15. Structures for which the reactions at the supports and the internal forces in the members can be found out by the conditions of static equilibrium, is known as...
 (a) Indeterminate Structure (c) Stable Structure
 (b) Determinate Structure (d) Unstable Structure</p> <p>16. For a cantilever beam of 3m length, subjected to 10kN downward point load at free end, Reaction at the Fixed end =...
 (a) 10 kN upward load, 30 kN.m anticlockwise moment
 (b) 10 kN downward load, 30 kN.m anticlockwise moment</p> | <p>[01] C1B1</p> <p>[01] C2B2</p> <p>[01] C3B2</p> <p>[01] C3B2</p> <p>[01] C3B3</p> <p>[01] C3B3</p> <p>[01] C3B2</p> <p>[01] C3B2</p> <p>[01] C3B2</p> <p>[01] C2B2</p> <p>[01] C3B2</p> <p>[01] C3B3</p> <p>[01] C3B2</p> <p>[01] C3B3</p> <p>[01] C2B2</p> <p>[01] C3B3</p> <p>[01] C3B2</p> <p>[01] C3B3</p> <p>[01] C2B2</p> <p>[02] C3B3</p> |
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THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

Faculty of Technology & Engineering

S. S. OF B.A.RCH I Examination

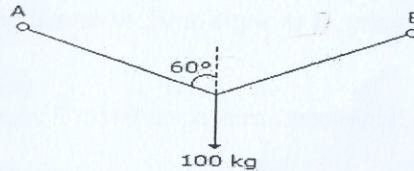
Day: Tuesday

Date: 5th July Year: 2022

Time: 11:30 am to 02:30 pm

SUBJECT : APPLIED MECHANICS (APM1203)

- (c) 10 kN upward load, 30 kN.m clockwise moment
(d) 10 kN downward load, 30 kN.m clockwise moment
17. Three forces $P = 50$ N (East), $Q = 100$ N (North) and $R = 75$ N (South) are acting on [02] C3B3
member, their resultant is ...
(a) 65.90 N (b) 75.9 N (c) 85.90 N (d) 55.9 N
18. Two forces of 80 N and 70 N act simultaneously at a point. What will be the resultant [02] C3B4
force, if the angle between them is 150° ?
(a) 100.7 N (b) 150 N (c) 106.3 N (d) 10 N
19. The resultant of two forces P and Q acting at an angle θ is equal to [02] C3B2
(a) $\sqrt{P^2 + Q^2 + 2PQ \sin \theta}$ (b) $\sqrt{P^2 + Q^2 + 2PQ \cos \theta}$
(c) $\sqrt{P^2 + Q^2 - 2PQ \sin \theta}$ (d) $\sqrt{P^2 + Q^2 - 2PQ \cos \theta}$
20. A weight of 100 kg is supported by a string whose ends are attached to points A and B [02] C3B4
at the same level shown in below figure. The tension in the string is



- (a) 50 kg (b) 100 kg (c) 75 kg (d) 120 kg
- Q2. Answer the following questions. (Attempt any FIVE) (TWO marks each) [10]
a. Define Force. discuss its types and Characteristics. C1B2
b. Tension in cable BC is 725 N. Determine the resultant of three forces at point B of beam C3B3
AB as shown in Figure 1.
c. Calculate magnitude, direction and point of application of the Resultant force of given C3B3
coplanar non concurrent force system acting on a rod as shown in Figure 2.
d. What should be the magnitude of force X, if the system, shown in Figure 3, has magnitude C3B4
of resultant force as 0 kN.
e. Discuss various types of supports of beam and type of loads on a beam using neat sketches. C3B2
f. Write a short note on Truss, uses of truss and explain redundant truss. C3B2
- Q.3 Answer the following questions. (Attempt any THREE) (FIVE marks each) [15]
a. Two identical rollers each of mass 120 kg are supported by an inclined plane and a vertical C3B3
wall as shown in Figure 4. Assuming smooth surfaces, find the reactions induced at the
point of support A, B and C.
b. Calculate forces in each member of truss loaded and supported as shown in Figure 5. C3B4
c. Determine Support reactions of the beam as shown in Figure 6. C3B4
d. Determine Support reactions of the cantilever beam as shown in Figure 7. C2B4

SECTION II

- Q.4 Answer the following multiple choice type questions. Marks COBT
1. When mild steel is subjected to a tensile load, its fracture will conform to [01] C4B2
(a) Star Shape (c) Fibrous shape
(b) Cup and cone shape (d) Granular shape
2. When a bar is subjected to a change of temperature and its longitudinal deformation [01] C4B2
is prevented, the stress induced in the bar is
(a) Tensile Stress (c) Shear Stress
(b) Compressive Stress (d) Temperature Stress
3. In a composite body, consisting of two different materials.....will be same in [01] C4B2
both materials.
(a) Stress (b) Strain (c) Both stress and strain (d) None of these
4. Breaking stress is [01] C4B2
(a) Greater than Ultimate Stress (c) Equal to Ultimate Stress
(b) Less than ultimate stress (d) All of the above
5. The limit beyond which the material does not behave elastically is known as [01] C4B2

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- (a) Proportionality Limit (c) Plastic Limit
(b) Elastic Limit (d) Yield Point
6. Volumetric Strain is [01] C4B1
(a) Increase in Length/ Original Length (c) Change in volume/ Original Volume
(b) Decrease in Length/ Original Length (d) All of the above
7. Modulus of rigidity is [01] C4B1
(a) Tensile stress / Tensile strain (c) Tensile stress / Shear strain
(b) Shear stress / Shear strain (d) Shear stress / Tensile strain
8. Poisson's ratio is [01] C4B1
(a) Lateral strain / Longitudinal strain (c) Longitudinal strain / Lateral strain
(b) Shear strain / Lateral strain (d) Lateral strain / Volumetric strain
9. A perfectly elastic body... [01] C4B2
(a) Can move freely
(b) Has perfectly smooth surface
(c) Is not deformed by external forces
(d) Recovers its original shape and size when the deforming force is removed
10. Polar moment of inertia= [01] C2B2
(a) Square of rectangular moment of inertia
(b) Multiplication of rectangular moment of inertia
(c) Sum of rectangular moment of inertia
(d) Difference of rectangular moment of inertia
11. Unit of area moment of inertia is... [01] C2B3
(a) $\text{kg} \cdot (\text{m}^2)$ (b) m^2 (c) m^3 (d) m^4
12. For a solid circular section, moment of inertia about the axis passing through centroid is found using [01] C2B2
(a) Theorem of parallel axis (c) Theorem of transfer axis
(b) Theorem of perpendicular axis (d) Theorem of straight axis
13. For a system of bodies lying on earth at a same height, the centre of gravity and the centre of mass are [01] C2B3
(a) Different (b) Parallel (c) Coinciding (d) At different location
14. Moment of inertia of a rectangular section about a principal axis is... [01] C2B2
(a) $(1/12) \cdot b \cdot d$ (b) $(1/12) \cdot b \cdot (d^2)$ (c) $(1/12) \cdot b \cdot (d^4)$ (d) $(1/12) \cdot b \cdot (d^3)$
15. What is moment of inertia about base of the triangle? (b = width, h = height) [01] C2B2
(a) $(1/36) \cdot b \cdot h^3$ (b) $(1/24) \cdot b \cdot h^2$ (c) $(1/16) \cdot b \cdot h^2$ (d) $(1/12) \cdot b \cdot h^3$
16. A rod, 120cm long and of diameter 3.0 cm is subjected to an axial pull of 18 kN. The stress in N/mm^2 is. [02] C4B3
(a) 22.57 (b) 23.47 (c) 24.57 (d) 25.47
17. When a wire is stretched to double in length, the longitudinal strain produced in it is [02] C4B3
(a) 0.5 (b) 1 (c) 1.5 (d) 2
18. For a horizontal solid half circle of radius r , what is the moment of inertia about the centroidal axis? [02] C2B3
(a) $.011(r^4)$ (b) $.11(r^4)$ (c) $.055(r^4)$ (d) $.55(r^4)$
19. What is moment of inertia about the base of the rectangle? (b = width, h = height) [02] C2B3
(a) $(1/36) \cdot b \cdot h^3$ (b) $(1/24) \cdot b \cdot h^2$ (c) $(1/3) \cdot b \cdot h^3$ (d) $(1/12) \cdot b \cdot h^3$
20. 15. What is moment of inertia about centroid of the triangle? (b = width, h = height) [02] C2B3
(a) $(1/36) \cdot b \cdot h^3$ (b) $(1/24) \cdot b \cdot h^3$ (c) $(1/16) \cdot b \cdot h^2$ (d) $(1/12) \cdot b \cdot h^3$

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- Q5. Answer the following questions. (Attempt any FIVE) (TWO marks each) [10]
- a. A prismatic bar of 3 m length with a circular cross section of 30 mm diameter is subjected to an axial tensile force of 200 kN. The measured elongation is 25 mm. Calculate the tensile stress and strain. C4B4
 - b. A steel rod of 30 mm diameter and 2 m length is subjected to an axial pull of 60 kN. If $E = 2,00,000 \text{ N/mm}^2$, calculate the elongation of the bar. C4B4
 - c. Determine the tensile force on a steel bar of circle cross section 50 mm diameter if the strain is equal to 0.001. Consider E for steel $2,00,000 \text{ N/mm}^2$. C4B3
 - d. A brass bar ^{2m length} having cross section area of 1000 mm^2 is subjected to an axial force of 50 kN. Find the total elongation of the bar. Take $E = 1,05,000 \text{ N/mm}^2$. C4B3
 - e. Find the centroid of the plane lamina shown in Figure 8. C2B4
 - f. Find out moment of Inertia about base of the triangle as shown in Figure 9. C2B4
- Q.6 Answer the following questions. (Attempt any THREE) (FIVE marks each) [15]
- a. A compound tube consists of steel tube 150 mm internal diameter and 10 mm wall thickness and an outer brass tube of 170 mm internal diameter and 10 mm wall thickness. The two tubes are same length 150 mm. The compound tube carries an axial load of 1000 kN. Find the stresses in each tube and the amount by which they shorten. C4B3
 - b. Find the centroid of the lamina shown in Figure 10. C2B4
 - c. Find out moment of Inertia about centroidal axis of the lamina as shown in Figure 11. C2B4
 - d. Define following terms: C4B2
 - i. Stress and Strain ii. Modulus of Elasticity iii. Centroid
 - iv. Ultimate Stress v. True Breaking Stress

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Figures.

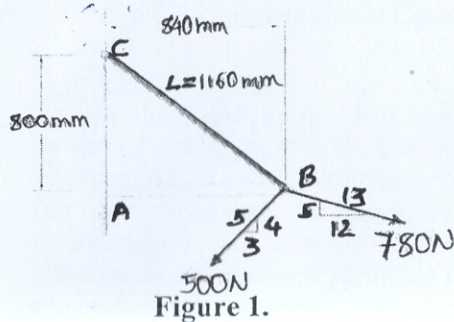
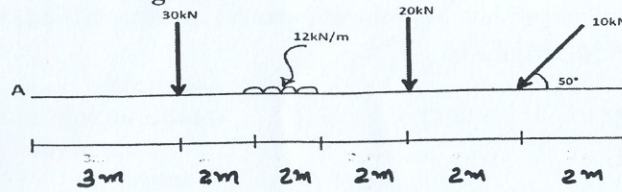


Figure 1.

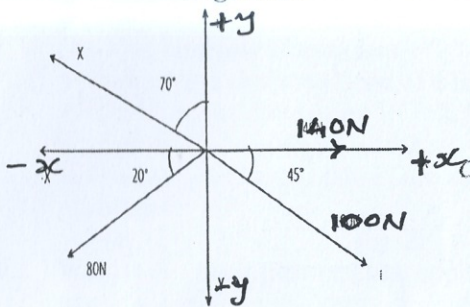


Figure 3.

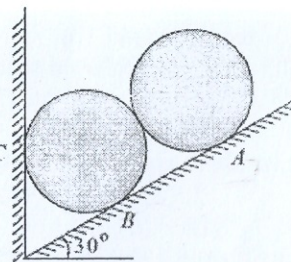


Figure 2.

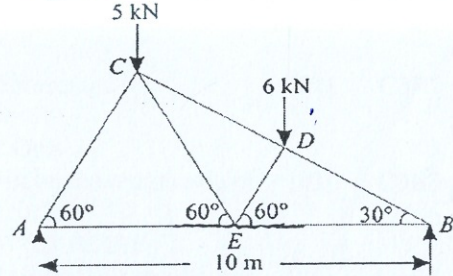


Figure 5.

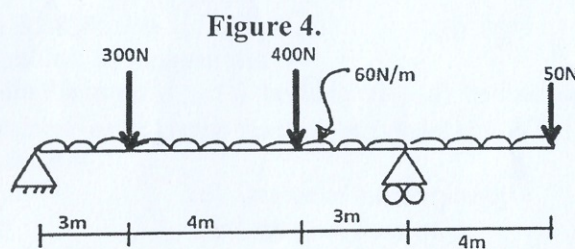


Figure 4.

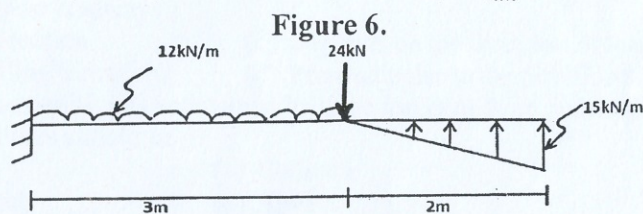


Figure 6.

Figure 7.

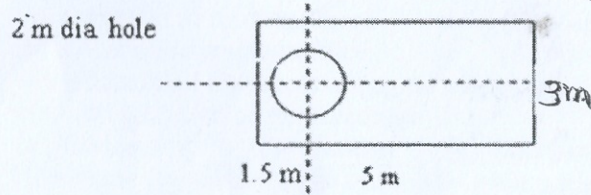


Figure 8.

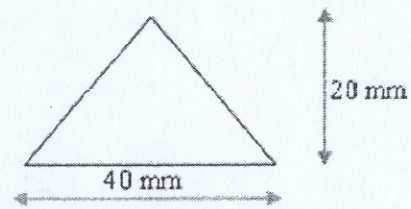


Figure 9.

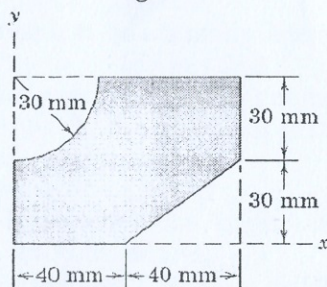


Figure 10.

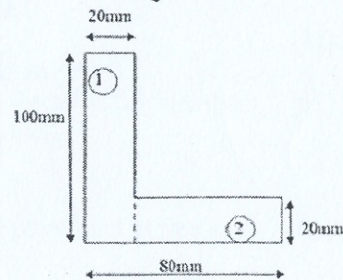


Figure 11.