FALLFR2122CAT2_VL2021220106154_BMAT101L_DEC21 ANKI REDDY POL (#33087)

Total Marks: 30   **Total Duration: 60 minutes**

Instructions

Basic Instructions

1. You can freely navigate between different questions forward and backward using **Next** and **Previous** buttons
2. **Finish** button will be enabled only towards the end of the exam.

Instructions for DESCRIPTIVE questions requiring SCAN & UPLOAD

1. Make sure to upload your **scans immediately after you answer** every question. Do NOT wait till the end to **avoid panic at the end**.
2. The exam time is inclusive of time for scanning & uploading answers.
3. If using **laptop + mobile** for the exam, click on **Open Test** on laptop and click on **Scan & Upload** on mobile.
4. If using **laptop + mobile** for the exam, when scanning and uploading from mobile, ensure that the correct question is open on the laptop.
5. When clicking on Camera button on a smart phone for scanning and uploading, you have 2 camera applications available to scan the answer: your phone's **native camera** and an alternative Low Memory Camera. Click on the **Low Memory Camera** in case your browser shows an error due to low memory.

PAJAMA PADHAI

Section: Module 3

Marks per question: 10
1 question(s) out of the 4 question(s) in this section will be shown to examinee
Examinee should answer all 1 question(s) in this section

Q1 **Difficulty Level: Medium**

Knowledge Level: K1   Course Outcomes: CO2

Obtain Taylor's series expansion of x^y in powers of $(x+1)$ and $(y-1)$ up to the third degree terms.

Q2 **Difficulty Level: Medium**

Knowledge Level: K1   **Course Outcomes:** CO2

Obtain Taylor's series expansion of x^y in powers of $(x+1)$ and $(y+1)$ up to the third degree terms.

Q3 **Difficulty Level: Medium**

Knowledge Level: K1   Course Outcomes: CO2

Obtain Taylor's series expansion of x^y in powers of $(x-1)$ and $(y+1)$ up to the third degree terms.

Q4 **Difficulty Level: Medium**

Knowledge Level: K1   Course Outcomes: CO2

Obtain Taylor's series expansion of x^y in powers of $(x+2)$ and $(y-1)$ up to the third degree terms.

Section: Module 3

Marks per question: 10
1 question(s) out of the 4 question(s) in this section will be shown to examinee
Examinee should answer all 1 question(s) in this section

Q1 Difficulty Level: Hard

Knowledge Level: K1   Course Outcomes: [CO2]

A tent of a given volume has a square base of side $2a$, has its four-side vertical of length b and is surmounted by a regular pyramid of height h. Find the values of a and b in terms of h such that the canvas required for its construction is minimum.

Q2 Difficulty Level: Hard

Knowledge Level: K1   Course Outcomes: [CO2]

A tent of a given volume has a square base of side $2x$, has its four-side vertical of length y and is surmounted by a regular pyramid of height h. Find the values of x and y in terms of h such that the canvas required for its construction is minimum.

Q3 Difficulty Level: Hard

Knowledge Level: K1   Course Outcomes: [CO2]

A tent of a given volume has a square base of side $2t$, has its four-side vertical of length s and is surmounted by a regular pyramid of height h. Find the values of t and s in terms of h such that the canvas required for its construction is minimum.

Q4 Difficulty Level: Hard

Knowledge Level: K1   Course Outcomes: [CO2]

A tent of a given volume has a square base of side $2l$, has its four-side vertical of length m and is surmounted by a regular pyramid of height h. Find the values of l and m in terms of h such that the canvas required for its construction is minimum.

Section: Module 4

Marks per question: 10
1 question(s) out of the 4 question(s) in this section will be shown to examinee
Examinee should answer all 1 question(s) in this section

Q1   Difficulty Level: Medium

Knowledge Level: K1   Course Outcomes: [CO3]

Change the order of integration and hence evaluate $\displaystyle\int_0^5\int_0^y \frac{dx\,dy}{\sqrt{(25+x^2)(5-y)(y-x)}}$.

Q2   Difficulty Level: Medium

Knowledge Level: K1   Course Outcomes: [CO3]

Change the order of integration and hence evaluate $\displaystyle\int_0^2\int_0^y \frac{dx\,dy}{\sqrt{(4+x^2)(2-y)(y-x)}}$.

Q3   Difficulty Level: Medium

Knowledge Level: K1   Course Outcomes: [CO3]

Change the order of integration and hence evaluate $\displaystyle\int_0^3\int_0^y \frac{dx\,dy}{\sqrt{(9+x^2)(3-y)(y-x)}}$.

Q4   Difficulty Level: Medium

Knowledge Level: K1   Course Outcomes: [CO3]

Change the order of integration and hence evaluate $\displaystyle\int_0^4\int_0^y \frac{dx\,dy}{\sqrt{(16+x^2)(4-y)(y-x)}}$.