

Printing Pages : 1

Paper Code : - BME-004

(C) (SVSU) : 2024-2025/R

Enrollment No.

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B.TECH (ME)**IV YEAR VIII SEMESTER EXAMINATION****HUMAN RESOURCE DEVELOPMENTS AND ORGANIZATIONAL BEHAVIOR****[Time : 3:00 Hours]****[Max. Marks : 70]****NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS .****Q1. Attempt any two of the followings:****[2x7 =14]**

- Describe the method of skill up-gradation.
- What do you understand by Human Resource Management?
- Explain the importance of human resource planning.

Q2. Attempt any two of the followings:**[2x7 =14]**

- Write the different function of human resource management.
- List the types of planning, explain in brief.
- Explain the role of human resource in a global environment

Q3. Attempt any two of the followings:**[2x7 =14]**

- Explain in brief the importance of assessment.
- Explain the methods of training for employee.
- Describe the impotence of skill up-gradation.

Q4. Attempt any two of the followings:**[2x7 =14]**

- What do you understand by rating errors in the performance management system?
- Explain the competency-based performance review used in the human resource management system.
- List and explain in brief the factors influencing industrial relations.

Q5. Attempt any two of the followings:**[2x7 =14]**

- Explain in brief the stages of collective bargaining.
- What is the need of a state intervention system in the business?
- Explain the term trade union and write the characteristics of the trade union.

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(A) (SVSU) : 2024-2025/R

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B.TECH (ME)
IV YEAR VIII SEMESTER EXAMINATION
TOTAL QUALITY MANAGEMENT

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.
NON - PROGRAMMABLE CALCULATOR CAN BE USE.

QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.

(4*3=12)

- a) Enlist any three definition of quality?
- b) Discuss the concept of total quality management?
- c) Distinguish between quality control and inspection?
- d) What are the barriers to implement TQM?
- e) What are different processes of procurement?

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- a) What do you mean by quality loss function?
- b) What is quality planning?
- c) What is the difference between the six sigma DMAIC and DMADV methodologies?
- d) Explain continuous improvement and innovation.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- a) What is service quality? What are the factors of service quality?
- b) Explain the quality concept of design. What are the factors that affect it?
- c) What are the types of cost associated with quality?
- d) Describe Deming's philosophy for quality improvement.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- a) Give a detailed note on PDCA cycle.
- b) Discuss six sigma concept with methodology
- c) What is ISO-9000? Explain its principle, benefits and limitations?

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- a) What are Shewhart's control charts? Explain how they are used to reduce the production of defectives in a factory.
- b) Using a schematic diagram, explain the various steps in the construction of the QFD house of quality.
- c) Write short note on the followings terms:
 - 1) Benchmarking
 - 2) Process capability

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B. TECH (ME)
IV YEAR VIII SEMESTER EXAMINATION
AUTOMOBILE ENGINEERING

[Time: 3:00 Hours]

[Max. Marks : 70]

NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS . NON-PROGRAMMABLE CALCULATOR CAN BE USED.

QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.**(4*3=12)**

- What is a universal joint? What are its types?
- What is the purpose of using transmission system in an automobile?
- What is the requirement of good braking system?
- Why is wheel alignment and balancing necessary?
- What are the stresses to which the frame members are subjected to?
- Why are fuel cells not preferred for automobiles now?

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.**(3*4=12)**

- Explain emission standard for pollution control. Describe Euro-II norms for passenger cars.
- Compare the constructional and operational aspects of disc and drum brakes in automobiles.
- How is CNG better fuel than diesel from the view point of pollution?
- What are catalytic converters? Explain the working principles of 3-way catalytic converters with chemical reaction.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.**(3*6=18)**

- What is overdrive? Explain its construction and discuss its working briefly.
- Explain the construction and working of Torque Converter.
- Explain about horn, wiper, and fuel gauge and engine temperature indicator?
- What is MPFI? Explain with neat and clean diagram.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.**(2*7=14)**

- Discuss the principle of operation of a fuel cell with a neat sketch and explain briefly the applications.
- What are the requirements of good braking system? Explain Hydraulic brake system and master cylinder used in it with proper diagram.
- Why suspension system is required in Automobile? Write different types of suspension system. Explain Telescopic Shock absorber with neat diagram.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.**(2*7=14)**

- Explain the working of constant mesh gear box with neat sketch. What are its advantages and limitations?
- What is supercharging? Why it is done and what are supercharging limits for CI engine?
- Draw a layout of a four-wheeler automobile chassis. What design features are to be considered in making a chassis frame?

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B.TECH (AE)

**IV YEAR VIII SEMESTER EXAMINATION
PRINCIPLE OF FLIGHT**

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS**QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.**

(4*3=12)

- Define Mach number and give the classification of flow based on it.
- Write any three differences between weight and mass.
- What is Bernoulli's Principle? Write its mathematical form.
- Define stall. What happens to lift when stall occurs?
- Write short notes on the role of camber and angle of attack in lift generation
- List the four forces acting on an aircraft and briefly state their role in level flight.

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- Differentiate between compressible and incompressible flow with examples.
- A Boeing 747 has a mass of 400,000 kg. Calculate its weight.
- Using lift equation. Describe the effects of altitude and temperature on air density and aircraft performance.
- A jet engine expels gases at 800 m/s. If the thrust generated is 100,000 N, find the mass flow rate.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- Explain how Bernoulli's principle explains lift generation on an airfoil. Include a labeled diagram.
- A jet aircraft is flying at 150 m/s in air of density 0.9 kg/m^3 . If its wing area is 20 m^2 and drag coefficient is 0.03, calculate the drag force.
- Write short notes on: (i) Skin Friction Drag
(ii) Form Drag
(iii) Induced Drag
- Derive the lift equation from Bernoulli's principle.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- A lunar lander (mass = 1200 kg) decelerates from 500 m/s to 0 m/s using 3600 N thrust. Find the time required.
- Explain the role of flaps, ailerons, rudder, and elevators with respect to aircraft control.
- A fighter jet needs a lift of 150,000 N at 250 m/s. If the wing area is 30 m^2 and $CL=1.2$, calculate the air density

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- Describe different types of drag and how they affect aircraft performance during cruise and landing
- Explain how air density, wing area, and lift coefficient affect total lift with the help of the lift equation.
- Explain the working principle of Turbofan engine with neat sketch. Differentiate between turbofan and ramjet engine.

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(C) (SVSU) : 2024-2025/R

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B.TECH (ME)
IV YEAR VIII SEMESTER EXAMINATION
HISTROY OF SCIENCE & ENGINEERING

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS**QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.**

(4*3=12)

- a) Explain the artificial satellite.
- b) Explain the relation between society and science.
- c) Describe the nature of science and technology.
- d) Give a short note on ISRO.
- e) Explain R & D expenditure in India.

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- a) Explain the steps of technology transfer.
- b) Describe the scientific and technological developments in medieval INDIA.
- c) Differentiate natural & artificial satellite.
- d) Explain the technology transfer barriers.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- a) Discuss the earliest notions of science in ancient India.
- b) Explain the vision of Nehru for independent India.
- c) Discuss the five year plan periods.
- d) Write a note on space programs of India.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- a) Write a note on i) MOON mission ii) MARS mission of INDIA.
- b) Describe the applications of biotechnology.
- c) Give a note on science & technology education.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- a) Explain the different techniques of technology transfer.
- b) Explain scientific and technological developments in Medieval INDIA.
- c) Explain a) biocatalysts b) husbandry energy.

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B.TECH (ME)
IV YEAR VIII SEMESTER EXAMINATION
AUTOMOBILE ENGINEERING

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS . NON-PROGRAMMABLE CALCULATOR CAN BE USED.

QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.**(4*3=12)**

- a) What happens if we use diesel in a petrol engine and vice versa?
- b) What is the ignition advance?
- c) Compare Hotchkiss drive & torque tube drive.
- d) What are the various defects in clutch?
- e) What is the function of a bumper?
- f) Why are fuel cells not preferred for automobiles now?

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.**(3*4=12)**

- a) Explain the principle of Ackermann steering gear.
- b) Compare the constructional and operational aspects of disc and drum brakes in automobiles.
- c) How is CNG better fuel than diesel from the view point of pollution?
- d) What are catalytic converters? Explain the working principles of 3-way catalytic converters with chemical reaction.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.**(3*6=18)**

- a) What is overdrive? Explain its construction and discuss its working briefly.
- b) Explain the construction and working of Torque Converter.
- c) Give the arrangements of brakes in different vehicles. Explain these briefly.
- d) Why is an ignition system needed in an automobile? What function does it serve?

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.**(2*7=14)**

- a) Discuss the principle of operation of a fuel cell with a neat sketch and explain briefly the applications.
- b) Describe the formula for torque transmitted by single plate clutch and explain it with help of sketch.
- c) Why suspension system is required in Automobile? Write different types of suspension system. Explain Telescopic Shock absorber with neat diagram.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.**(2*7=14)**

- a) What are advantages of synchromesh gear box over constant mesh gear box? Explain synchromesh gear working with suitable sketch.
- b) What is supercharging? Why it is done and what are supercharging limits for CI engine?
- c) Sketch and explain the layout of an automobile chassis marking the important parts.

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B.TECH (ME)
IV YEAR VIII SEMESTER EXAMINATION
HISTROY OF SCIENCE & ENGINEERING

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS**QUESTION NO.-1: ATTEMPT ANY FOUR PARTS.**

(4*3=12)

- a) Write a short note on CSIR.
- b) Differentiate basic and applied sciences.
- c) Describe the role of scientist's in society.
- d) Explain the co-relation between science, society and technology.
- e) Write a short note on R & D expenditure of India for the current Year.

QUESTION NO.-2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- a) Write a note on Energy Conservation.
- b) Describe the developments in science & tech. after independence.
- c) Describe the space mission of India.
- d) Write a short note on MARS Mission.

QUESTION NO.-3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- a) Discuss Science and Technology developments in current age.
- b) Explain the vision of Nehru for independent India.
- c) Discuss the developments during five year plan periods.
- d) Describe nuclear missions of India.

QUESTION NO.-4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- a) Explain the Geostationary Satellites & limitations of it.
- b) Describe the applications of biotechnology in different field.
- c) Explain the biosensors & its applications.

QUESTION NO.-5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- a) Explain the contributions of ISRO.
- b) Explain INSAT system of INDIA.
- c) Write a note on a) PSLV b) GSLV.
