

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester BVOC AUTOMOBILE/BVOC SD Degree Examination, November 2025

A11 – Basic Mathematics and General Awareness

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

PART A

Answer *all* questions.Each question carries *Two* marks.

1. If 30% of $(X + Y)$ is equal to 50% of $(X - Y)$, find the ratio $X : Y$.
2. Find the simple interest on ₹50,000 at 10% per annum for 3 years.
3. In how many ways can a committee of 5 members be formed from 8 men and 6 women, if it must include 3 men and 2 women?
4. In a row, Raju's position from the left is 12th and from the right is 15th. How many students are there in the row?
5. If green is called black, black is called white, white is called rosy, rosy is called yellow, yellow is called blue and blue is brown, what is the colour of ice?
6. Five girls are sitting on a bench to be photographed. Sita is to the left of Rani and to the right of Bindu. Mary is to the right of Rani, and Reeta is between Rani and Mary. Who is second from the left in the photograph?
7. Gaurav walks 20 km towards the north. He turns left and walks 40 km, then turns left again and walks 20 km. Finally, after turning left once more, he walks 20 km. How far is he from his starting point?
8. State an objective of the literature review in research.
9. What is meant by a research design?
10. Define macros in MS Excel.
11. What is the difference between system software and application software?
12. What is the purpose of a network router?
13. Differentiate a cheque from a demand draft in banking.
14. Name any two digital banking services in India.
15. State two key benefits of having insurance.

[Ceiling: 25 Marks]

PART B

**Answer *all* questions.
Each question carries *Five* marks.**

16. The difference between a number increased by 25% and the same number decreased by 30% is 22. What is the original number?
17. In how many different ways the letters of the word 'DIGEST' be arranged so that the vowels are never together?
18. Explain the difference between fundamental and applied research.
19. Write a note on the importance of research ethics.
20. Explain the benefits of using MS Office in academics.
21. Explain the main functions of an operating system.
22. Describe any kind of bank card and its uses.
23. Describe the types of shares traded in the stock market.

[Ceiling: 35 Marks]

PART C

**Answer any *two* questions.
Each question carries *Ten* marks.**

24. (a) The mean of five observations $x, x + 3, x + 6, x + 9, x + 12$ is 15. Find the mean of the last three observations.
(b) Two cards are drawn at random from a pack of 52 cards. What is the probability that both are black or both are queens?
25. Explain different steps in the research process.
26. What is a Database Management System? Explain its merits and demerits.
27. What are the different functions of Reserve Bank of India (RBI)?

[2 x 10 = 20 Marks]

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

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A12 – Professional Business Skills

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

**PART A: Answer the following questions. Each carries 2 marks
(Ceiling 25 Marks)**

1. What is the meaning of professionalism?
2. What is the role of verbal communication in business?
3. Mention two common presentation postures.
4. What is e-learning?
5. Define digital age learners.
6. List any two e-learning platforms.
7. What is cyber informatics?
8. Name two Cybersecurity tools.
9. What is internet governance?
10. What is big data?
11. Define artificial intelligence.
12. Mention two sources of business data.
13. Name two digital marketing platforms.
14. What is the difference between B2C and B2B marketing?
15. Define SEO.

**PART B: Answer the following questions. Each carries 5 marks
(Ceiling 35 Marks)**

16. Describe any five soft skills essential for business success.
17. Explain the role of e-books and e-journals in education.
18. What are MOOCs? Explain their role in digital education.
19. Explain the role of social media in digital marketing.
20. Explain the role of citizen in e waste disposal.
21. What are cyber ethics? Discuss their importance.
22. Discuss how data analytics helps improve customer experience.
23. What are intelligent agents? Give examples.

PART C: Answer two questions. Each question carries 10 marks
(Ceiling 20 Marks)

24. Discuss the advantages and disadvantages of online learning
25. Describe PPC advertising and its benefits.
26. What are the objectives of Cybersecurity? Explain briefly.
27. Discuss the types of digital marketing with examples.

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Third Semester BVOC AUTOMOBILE Degree Examination, November 2025

GEC3CM11 – Human Resource Management

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

**PART A: Answer the following questions. Each carries 2 marks
(Ceiling 25 Marks)**

1. Explain the term E-HRM.
2. What is the difference between Personnel Management and HRM?
3. What is meant by Human Resource Planning (HRP)?
4. Differentiate between job description and job specification.
5. Define training evaluation.
6. Differentiate between induction and internal mobility.
7. What is performance appraisal?
8. Define career development.
9. What is meant by grievance redressal?
10. State two objectives of compensation planning
11. Mention two advantages of strategic HRM over traditional HRM.
12. What is recruitment?
13. What is internal mobility of employees?
14. What is the use of career planning for employees?
15. What is labour participation in management?

**PART B: Answer the following questions. Each carries 5 marks
(Ceiling 35 Marks)**

16. Compare and contrast traditional HRM with strategic HRM.
17. Discuss the factors influencing wage determination.
18. Discuss the process of job analysis.
19. Explain the role of placement in effective human resource management.
20. Describe the uses of performance appraisal for employees and management.
21. Discuss the role of career planning in employee motivation.
22. Explain the difference between on-the-job and off-the-job training methods.
23. Describe the essentials of a sound grievance redressal procedure.

PART C: Answer two questions. Each question carries 10 marks

- 24. What are the different sources of recruitment?
- 25. Analyse the different approaches and methods of employee training.
- 26. Examine the different types of E-HRM (Operational, Relational, Transformational) and their significance in modern organisations.
- 27. Explain the role of HRM in gaining competitive advantage in today's globalised business environment.

(2 x 10 = 20 Marks)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester BVOC AUTOMOBILE Degree Examination, November 2025

SDC3AU12 – Power Systems and Power Electronics

(2021 Admission onwards)

Time: 2 hours

Max. Marks : 60

PART-A**Answer all questions.****Each question carries Two mark.****Ceiling -20 Marks**

1. Define a power diode and mention its application.
2. What is a dual converter?
3. Compare SCR and MOSFET.
4. What is SPWM technique in inverters?
5. Draw the waveform of a square wave inverter with R load.
6. List the types of choppers.
7. What is the function of a Cuk converter?
8. Define Ferranti effect.
9. What is skin effect in transmission lines?
10. Compare underground cables and overhead lines.
11. Define arc quenching.
12. Mention any two types of circuit breakers.

PART- B**Answer all questions.****Each question carries Five marks.****Ceiling -30 Marks**

13. Explain the characteristics and switching losses of IGBT.
14. Explain the working of a single-phase full bridge inverter with RL load.
15. Describe three-phase bridge inverter with RLE load and waveform.
16. Explain the principle of operation of a buck-boost converter.
17. Describe corona effect and factors affecting it.
18. Explain electromagnetic attraction and electromagnetic induction type relays.
19. Differentiate between air circuit breaker and oil circuit breaker.

PART - C

Answer any *one* question.

Each question carries Ten marks.

20. With a neat diagram, explain the working of a push-pull DC-DC converter.
21. Discuss in detail the different methods of potential equalization in transmission lines.

1 x 10 = 10 Mark

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Third Semester BVOC AUTOMOBILE Degree Examination, November 2025

SDC3AU13 – Automotive Electrical and Electronics System

(2021 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

PART-A**Answer all questions.****Each question carries Two marks.****Ceiling - 25 Marks**

1. Explain Boost charging of an automobile battery.
2. What are the advantages of Pb - Acid Batteries over conventional batteries.
3. What are the chemical reactions that occur during discharge of a Pb-Acid Battery.
4. What is Open Circuit Voltage (OCV) Test in a battery?
5. Name different efficiencies used for battery rating.
6. List any two care and maintenance practices for a starter motor.
7. What is the function of a starter switch?
8. Explain starting circuit voltage drop test.
9. Explain how permanent magnet starter achieve greater torque.
10. Define armature reaction.
11. What is the function of the third brush in a generator?
12. List any four advantages of LED lighting over conventional bulbs in vehicles.
13. What is headlight dazzling? Suggest two preventive methods.
14. Define Electromagnetic Interference (EMI).
15. What is the role of a multimeter in automotive diagnostics?

PART- B

Answer all questions.

Each question carries Five marks.

Ceiling - 35 Marks

16. Explain what is 'Sulphation' in a lead-acid battery?
17. Discuss the different cause of battery failure in a vehicle.
18. Discuss different types of starter switches used in vehicles and their role in the starting system.
19. Draw and explain the block diagram of the vehicle starter.
20. Draw and explain load characteristics of a shunt generator.
21. Describe the construction and operation of an automotive horn.
22. Compare passive and active vehicle security systems with examples.
23. Describe the causes and effects of Electromagnetic Interference (EMI) in automobiles.

PART - C

Answer any two questions.

Each question carries Ten marks.

24. With a neat diagram, explain the construction and working of Pb – acid battery.
25. Explain the working of different starter drive units.
26. Write a detailed note on recent developments in automotive charging and lighting systems.
27. Prepare a diagnostic checklist for a vehicle's complete electrical system.

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SDC3AU14 – Electrical Machines and Machine Drives

(2021 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

PART-A**Answer all questions.****Each question carries Two mark.****Ceiling -25 Marks**

1. What is commutation in a DC machine?
2. State any two materials commonly used for transformer cores.
3. Give the speed regulation formula for a DC generator.
4. Why are inter-poles provided in DC machines?
5. What is meant by a salient-pole rotor?
6. Write the expression for synchronous speed in r.p.m.
7. Give one reason why a single-phase induction motor is not self-starting.
8. Define slip in induction motors.
9. What is the function of a rotating magnetic field in 3-phase induction motors?
10. What is a switched-reluctance motor (SRM)?
11. Define step angle in stepper motors.
12. Mention one industrial use of a linear synchronous motor.
13. What is meant by speed control of a motor?
14. Give one example of an electric drive used at home.
15. Write one advantage of using electrical drives.

PART- B

Answer *all* questions.

Each question carries Five marks.

Ceiling -35 Marks

16. Explain the difference between a step-up and step-down transformer with examples.
17. List the types of losses in a transformer and explain any two.
18. Explain the term synchronization of an alternator.
19. Draw the torque-slip curve of a 3-phase induction motor and explain its regions.
20. List and explain any two starting methods of induction motors.
21. Explain how a hysteresis motor works and where it is used.
22. Describe the construction and use of a linear induction motor.
23. Draw the block diagram of an electrical drive system and explain the function of each block.

PART - C

Answer any *two* questions.

Each question carries Ten marks.

24. Describe the different losses in a transformer and explain how efficiency is calculated. Also explain the condition for maximum efficiency.
25. What are the conditions for parallel operation of synchronous generators? Explain with diagrams.
26. Derive an expression for starting torque and maximum torque of an induction motor.
27. Explain how it varies with rotor resistance.
28. Compare any three special machines based on construction, working, and applications.

2 x 10 = 20 Marks