# FINAL ASSESSMENT SCRIPT SUBMISSION FORM

Script marking is only available to Classroom, Live Online and Distance Learning students enrolled on appropriate Kaplan courses.

| Name:                  |
|------------------------|
| Address:               |
|                        |
|                        |
| Kaplan Student Number: |
| Your email address:    |
|                        |



PUBLISHING

# ACCA Paper F2/FMA Management Accounting September and December 2015 Final Assessment

#### Instructions

- Please complete your personal details above.
- All scripts should ideally be submitted to your Kaplan centre for marking via email to help speed up the marking process. Please scan this form and your answer script in a single PDF and email it to your Kaplan centre.
- Alternatively you may post your script to us. If so, please use the correct Royal Mail tariff (large letter).
- Classroom students may submit scripts to their local centre in person.
  You will be provided with the dated receipt below which you should retain as proof of submission.

Note: If you are a sponsored student, your result will form part of the report to your employer.

Office use

| Centre            | Date sent to marker       |
|-------------------|---------------------------|
| Date received     | Date received from marker |
| Marker's initials | Date returned to student  |
|                   | Student's overall mark    |

*Receipt – only issued if script submitted by classroom student in person to Kaplan centre:* 

| ×       |              |
|---------|--------------|
| Name:   | Received by: |
| Script: | Date:        |



### PUBLISHING

## **Marking Report**

#### **Notice to Markers**

1 When commenting about the script performance, please ensure on individual questions and on overall assessment your comments cover areas of examination technique including:

| • | Time<br>management                              | • | Handwriting                            | • | Presentation and layout                               | • | Use of<br>English                 |
|---|-------------------------------------------------|---|----------------------------------------|---|-------------------------------------------------------|---|-----------------------------------|
| • | Points clearly and concisely made               | • | Relevance of<br>answers to<br>question | • | Coverage and depth of answer                          | • | Accuracy of calculations          |
| • | Calculations<br>cross-referenced<br>to workings | • | All parts of the requirement attempted | • | Length of<br>answers equates<br>to marks<br>available | • | Read the<br>question<br>carefully |

2 For each question, please provide suitable constructive comments

| Question<br>Number | General Comments | Exam Technique Comments |
|--------------------|------------------|-------------------------|
|                    |                  |                         |
|                    |                  |                         |
|                    |                  |                         |
|                    |                  |                         |
|                    |                  |                         |
|                    |                  |                         |
|                    |                  |                         |
|                    |                  |                         |
|                    |                  |                         |
|                    |                  |                         |

# ACCA FINAL ASSESSMENT

# Management Accounting

# September and December 2015

Time allowed 2 hours

This paper is divided into 2 sections:

Section A: All 35 questions are compulsory and MUST be attempted.

Section B: All THREE questions are compulsory and MUST be attempted.

Formulae Sheet is on page 3.

Do not open this paper until instructed by the supervisor.

This question paper must not be removed from the examination hall.

Kaplan Publishing/Kaplan Financial

FZZ Ó σ Τ



© Kaplan Financial Limited, 2015

The text in this material and any others made available by any Kaplan Group company does not amount to advice on a particular matter and should not be taken as such. No reliance should be placed on the content as the basis for any investment or other decision or in connection with any advice given to third parties. Please consult your appropriate professional adviser as necessary. Kaplan Publishing Limited and all other Kaplan group companies expressly disclaim all liability to any person in respect of any losses or other claims, whether direct, indirect, incidental, consequential or otherwise arising in relation to the use of such materials.

All rights reserved. No part of this examination may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without prior permission from Kaplan Publishing.

# FORMULAE AND TABLES

## **Regression analysis**

$$y = a + bx$$
$$a = \frac{\sum y}{n} - \frac{b\sum x}{n}$$
$$b = \frac{n\sum xy - \sum x\sum y}{n\sum x^2 - (\sum x)^2}$$
$$r = \frac{n\sum xy - \sum x\sum y}{\sqrt{(n\sum x^2 - (\sum x)^2)(n\sum y^2 - (\sum y)^2)}}$$

## **Economic order quantity**

$$=\sqrt{\frac{2C_oD}{C_h}}$$

# Economic batch quantity

$$= \sqrt{\frac{2C_oD}{C_h(1-\frac{D}{R})}}$$

## **Present value table**

Present value of 1, i.e.  $(1 + r)^{-n}$ 

Where r = discount rate

n = number of periods until payment

|                                                                                                 |                                                                                                                                                     |                                                                                                                          |                                                                                                                                   |                                                                                                                                             | Discoun                                                                                                                                                | t rate (r)                                                                                                                                               |                                                                                                                                   |                                                                                                                                   |                                                                                                                                            |                                                                                                                                   |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Periods                                                                                         |                                                                                                                                                     |                                                                                                                          |                                                                                                                                   |                                                                                                                                             |                                                                                                                                                        |                                                                                                                                                          |                                                                                                                                   |                                                                                                                                   |                                                                                                                                            |                                                                                                                                   |
| (n)                                                                                             | 1%                                                                                                                                                  | 2%                                                                                                                       | 3%                                                                                                                                | 4%                                                                                                                                          | 5%                                                                                                                                                     | 6%                                                                                                                                                       | 7%                                                                                                                                | 8%                                                                                                                                | 9%                                                                                                                                         | 10%                                                                                                                               |
| 1                                                                                               | 0.990                                                                                                                                               | 0.980                                                                                                                    | 0.971                                                                                                                             | 0.962                                                                                                                                       | 0.952                                                                                                                                                  | 0.943                                                                                                                                                    | 0.935                                                                                                                             | 0.926                                                                                                                             | 0.917                                                                                                                                      | 0.909                                                                                                                             |
| 2                                                                                               | 0.980                                                                                                                                               | 0.961                                                                                                                    | 0.943                                                                                                                             | 0.925                                                                                                                                       | 0.907                                                                                                                                                  | 0.890                                                                                                                                                    | 0.873                                                                                                                             | 0.857                                                                                                                             | 0.842                                                                                                                                      | 0.826                                                                                                                             |
| 3                                                                                               | 0.971                                                                                                                                               | 0.942                                                                                                                    | 0.915                                                                                                                             | 0.889                                                                                                                                       | 0.864                                                                                                                                                  | 0.840                                                                                                                                                    | 0.816                                                                                                                             | 0.794                                                                                                                             | 0.772                                                                                                                                      | 0.751                                                                                                                             |
| 4                                                                                               | 0.961                                                                                                                                               | 0.924                                                                                                                    | 0.888                                                                                                                             | 0.855                                                                                                                                       | 0.823                                                                                                                                                  | 0.792                                                                                                                                                    | 0.763                                                                                                                             | 0.735                                                                                                                             | 0.708                                                                                                                                      | 0.683                                                                                                                             |
| 5                                                                                               | 0.951                                                                                                                                               | 0.906                                                                                                                    | 0.863                                                                                                                             | 0.822                                                                                                                                       | 0.784                                                                                                                                                  | 0.747                                                                                                                                                    | 0.713                                                                                                                             | 0.681                                                                                                                             | 0.650                                                                                                                                      | 0.621                                                                                                                             |
|                                                                                                 |                                                                                                                                                     |                                                                                                                          |                                                                                                                                   |                                                                                                                                             |                                                                                                                                                        |                                                                                                                                                          |                                                                                                                                   |                                                                                                                                   |                                                                                                                                            |                                                                                                                                   |
| 6                                                                                               | 0.942                                                                                                                                               | 0.888                                                                                                                    | 0.837                                                                                                                             | 0.790                                                                                                                                       | 0.746                                                                                                                                                  | 0.705                                                                                                                                                    | 0.666                                                                                                                             | 0.630                                                                                                                             | 0.596                                                                                                                                      | 0.564                                                                                                                             |
| 7                                                                                               | 0.933                                                                                                                                               | 0.871                                                                                                                    | 0.813                                                                                                                             | 0.760                                                                                                                                       | 0.711                                                                                                                                                  | 0.665                                                                                                                                                    | 0.623                                                                                                                             | 0.583                                                                                                                             | 0.547                                                                                                                                      | 0.513                                                                                                                             |
| 8                                                                                               | 0.923                                                                                                                                               | 0.853                                                                                                                    | 0.789                                                                                                                             | 0.731                                                                                                                                       | 0.677                                                                                                                                                  | 0.627                                                                                                                                                    | 0.582                                                                                                                             | 0.540                                                                                                                             | 0.502                                                                                                                                      | 0.467                                                                                                                             |
| 9                                                                                               | 0.914                                                                                                                                               | 0.837                                                                                                                    | 0.766                                                                                                                             | 0.703                                                                                                                                       | 0.645                                                                                                                                                  | 0.592                                                                                                                                                    | 0.544                                                                                                                             | 0.500                                                                                                                             | 0.460                                                                                                                                      | 0.424                                                                                                                             |
| 10                                                                                              | 0.905                                                                                                                                               | 0.820                                                                                                                    | 0.744                                                                                                                             | 0.676                                                                                                                                       | 0.614                                                                                                                                                  | 0.558                                                                                                                                                    | 0.508                                                                                                                             | 0.463                                                                                                                             | 0.422                                                                                                                                      | 0.386                                                                                                                             |
|                                                                                                 |                                                                                                                                                     |                                                                                                                          |                                                                                                                                   |                                                                                                                                             |                                                                                                                                                        |                                                                                                                                                          |                                                                                                                                   |                                                                                                                                   |                                                                                                                                            |                                                                                                                                   |
| 11                                                                                              | 0.896                                                                                                                                               | 0.804                                                                                                                    | 0.722                                                                                                                             | 0.650                                                                                                                                       | 0.585                                                                                                                                                  | 0.527                                                                                                                                                    | 0.475                                                                                                                             | 0.429                                                                                                                             | 0.388                                                                                                                                      | 0.350                                                                                                                             |
| 12                                                                                              | 0.887                                                                                                                                               | 0.788                                                                                                                    | 0.701                                                                                                                             | 0.625                                                                                                                                       | 0.557                                                                                                                                                  | 0.497                                                                                                                                                    | 0.444                                                                                                                             | 0.397                                                                                                                             | 0.356                                                                                                                                      | 0.319                                                                                                                             |
| 13                                                                                              | 0.879                                                                                                                                               | 0.773                                                                                                                    | 0.681                                                                                                                             | 0.601                                                                                                                                       | 0.530                                                                                                                                                  | 0.469                                                                                                                                                    | 0.415                                                                                                                             | 0.368                                                                                                                             | 0.326                                                                                                                                      | 0.290                                                                                                                             |
| 14                                                                                              | 0.870                                                                                                                                               | 0.758                                                                                                                    | 0.661                                                                                                                             | 0.577                                                                                                                                       | 0.505                                                                                                                                                  | 0.442                                                                                                                                                    | 0.388                                                                                                                             | 0.340                                                                                                                             | 0.299                                                                                                                                      | 0.263                                                                                                                             |
| 15                                                                                              | 0.861                                                                                                                                               | 0.743                                                                                                                    | 0.642                                                                                                                             | 0.555                                                                                                                                       | 0.481                                                                                                                                                  | 0.417                                                                                                                                                    | 0.362                                                                                                                             | 0.315                                                                                                                             | 0.275                                                                                                                                      | 0.239                                                                                                                             |
|                                                                                                 |                                                                                                                                                     |                                                                                                                          |                                                                                                                                   |                                                                                                                                             |                                                                                                                                                        |                                                                                                                                                          |                                                                                                                                   |                                                                                                                                   |                                                                                                                                            |                                                                                                                                   |
|                                                                                                 |                                                                                                                                                     |                                                                                                                          |                                                                                                                                   |                                                                                                                                             |                                                                                                                                                        |                                                                                                                                                          |                                                                                                                                   |                                                                                                                                   |                                                                                                                                            |                                                                                                                                   |
|                                                                                                 |                                                                                                                                                     |                                                                                                                          |                                                                                                                                   |                                                                                                                                             | Discoun                                                                                                                                                | t rate (r)                                                                                                                                               |                                                                                                                                   |                                                                                                                                   |                                                                                                                                            |                                                                                                                                   |
| Periods                                                                                         |                                                                                                                                                     |                                                                                                                          |                                                                                                                                   |                                                                                                                                             | Discoun                                                                                                                                                | t rate (r)                                                                                                                                               |                                                                                                                                   |                                                                                                                                   |                                                                                                                                            |                                                                                                                                   |
| Periods<br>(n)                                                                                  | 11%                                                                                                                                                 | 12%                                                                                                                      | 13%                                                                                                                               | 14%                                                                                                                                         | Discoun <sup>-</sup><br>15%                                                                                                                            | t rate (r)<br>16%                                                                                                                                        | 17%                                                                                                                               | 18%                                                                                                                               | 19%                                                                                                                                        | 20%                                                                                                                               |
| Periods<br>(n)<br>1                                                                             | <b>11%</b><br>0.901                                                                                                                                 | <b>12%</b><br>0.893                                                                                                      | <b>13%</b><br>0.885                                                                                                               | <b>14%</b>                                                                                                                                  | <b>Discoun</b><br><b>15%</b><br>0.870                                                                                                                  | t rate (r)<br>16%<br>0.862                                                                                                                               | <b>17%</b><br>0.855                                                                                                               | <b>18%</b><br>0.847                                                                                                               | <b>19%</b><br>0.840                                                                                                                        | <b>20%</b>                                                                                                                        |
| Periods<br>(n)<br>1<br>2                                                                        | <b>11%</b><br>0.901<br>0.812                                                                                                                        | <b>12%</b><br>0.893<br>0.797                                                                                             | <b>13%</b><br>0.885<br>0.783                                                                                                      | <b>14%</b><br>0.877<br>0.769                                                                                                                | <b>Discoun</b><br><b>15%</b><br>0.870<br>0.756                                                                                                         | t rate (r)<br>16%<br>0.862<br>0.743                                                                                                                      | <b>17%</b><br>0.855<br>0.731                                                                                                      | <b>18%</b><br>0.847<br>0.718                                                                                                      | <b>19%</b><br>0.840<br>0.706                                                                                                               | <b>20%</b><br>0.833<br>0.694                                                                                                      |
| Periods<br>(n)<br>1<br>2<br>3                                                                   | <b>11%</b><br>0.901<br>0.812<br>0.731                                                                                                               | <b>12%</b><br>0.893<br>0.797<br>0.712                                                                                    | <b>13%</b><br>0.885<br>0.783<br>0.693                                                                                             | <b>14%</b><br>0.877<br>0.769<br>0.675                                                                                                       | <b>Discount</b><br>15%<br>0.870<br>0.756<br>0.658                                                                                                      | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641                                                                                                             | <b>17%</b><br>0.855<br>0.731<br>0.624                                                                                             | <b>18%</b><br>0.847<br>0.718<br>0.609                                                                                             | <b>19%</b><br>0.840<br>0.706<br>0.593                                                                                                      | <b>20%</b><br>0.833<br>0.694<br>0.579                                                                                             |
| Periods<br>(n)<br>1<br>2<br>3<br>4                                                              | <b>11%</b><br>0.901<br>0.812<br>0.731<br>0.659                                                                                                      | <b>12%</b><br>0.893<br>0.797<br>0.712<br>0.636                                                                           | <b>13%</b><br>0.885<br>0.783<br>0.693<br>0.613                                                                                    | <b>14%</b><br>0.877<br>0.769<br>0.675<br>0.592                                                                                              | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572                                                                                                    | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552                                                                                                    | <b>17%</b><br>0.855<br>0.731<br>0.624<br>0.534                                                                                    | <b>18%</b><br>0.847<br>0.718<br>0.609<br>0.516                                                                                    | <b>19%</b><br>0.840<br>0.706<br>0.593<br>0.499                                                                                             | <b>20%</b><br>0.833<br>0.694<br>0.579<br>0.482                                                                                    |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5                                                         | <b>11%</b><br>0.901<br>0.812<br>0.731<br>0.659<br>0.593                                                                                             | <b>12%</b><br>0.893<br>0.797<br>0.712<br>0.636<br>0.567                                                                  | <b>13%</b><br>0.885<br>0.783<br>0.693<br>0.613<br>0.543                                                                           | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519                                                                                            | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497                                                                                           | <b>16%</b><br>0.862<br>0.743<br>0.641<br>0.552<br>0.476                                                                                                  | <b>17%</b><br>0.855<br>0.731<br>0.624<br>0.534<br>0.456                                                                           | <b>18%</b><br>0.847<br>0.718<br>0.609<br>0.516<br>0.437                                                                           | <b>19%</b><br>0.840<br>0.706<br>0.593<br>0.499<br>0.419                                                                                    | <b>20%</b><br>0.833<br>0.694<br>0.579<br>0.482<br>0.402                                                                           |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5                                                         | 11%<br>0.901<br>0.812<br>0.731<br>0.659<br>0.593                                                                                                    | <b>12%</b><br>0.893<br>0.797<br>0.712<br>0.636<br>0.567                                                                  | <b>13%</b><br>0.885<br>0.783<br>0.693<br>0.613<br>0.543                                                                           | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519                                                                                            | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497                                                                                           | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552<br>0.476                                                                                           | <b>17%</b><br>0.855<br>0.731<br>0.624<br>0.534<br>0.456                                                                           | <b>18%</b><br>0.847<br>0.718<br>0.609<br>0.516<br>0.437                                                                           | <b>19%</b><br>0.840<br>0.706<br>0.593<br>0.499<br>0.419                                                                                    | <b>20%</b><br>0.833<br>0.694<br>0.579<br>0.482<br>0.402                                                                           |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6                                                    | 11%<br>0.901<br>0.812<br>0.731<br>0.659<br>0.593<br>0.535                                                                                           | <b>12%</b><br>0.893<br>0.797<br>0.712<br>0.636<br>0.567<br>0.507                                                         | <b>13%</b><br>0.885<br>0.783<br>0.693<br>0.613<br>0.543<br>0.480                                                                  | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519<br>0.456                                                                                   | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497<br>0.432                                                                                  | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552<br>0.476<br>0.410                                                                                  | <b>17%</b><br>0.855<br>0.731<br>0.624<br>0.534<br>0.456<br>0.390                                                                  | <b>18%</b><br>0.847<br>0.718<br>0.609<br>0.516<br>0.437<br>0.370                                                                  | <b>19%</b><br>0.840<br>0.706<br>0.593<br>0.499<br>0.419<br>0.352                                                                           | <b>20%</b><br>0.833<br>0.694<br>0.579<br>0.482<br>0.402<br>0.335                                                                  |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>5<br>6<br>7                                          | 11%<br>0.901<br>0.812<br>0.731<br>0.659<br>0.593<br>0.535<br>0.482                                                                                  | <b>12%</b><br>0.893<br>0.797<br>0.712<br>0.636<br>0.567<br>0.507<br>0.452                                                | <b>13%</b><br>0.885<br>0.783<br>0.693<br>0.613<br>0.543<br>0.480<br>0.425                                                         | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519<br>0.456<br>0.400                                                                          | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497<br>0.432<br>0.376                                                                         | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552<br>0.476<br>0.410<br>0.354                                                                         | 17%<br>0.855<br>0.731<br>0.624<br>0.534<br>0.456<br>0.390<br>0.333                                                                | <b>18%</b><br>0.847<br>0.718<br>0.609<br>0.516<br>0.437<br>0.370<br>0.314                                                         | <b>19%</b><br>0.840<br>0.706<br>0.593<br>0.499<br>0.419<br>0.352<br>0.296                                                                  | <b>20%</b><br>0.833<br>0.694<br>0.579<br>0.482<br>0.402<br>0.335<br>0.279                                                         |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8                                          | 11%<br>0.901<br>0.812<br>0.731<br>0.659<br>0.593<br>0.535<br>0.482<br>0.434                                                                         | <b>12%</b><br>0.893<br>0.797<br>0.712<br>0.636<br>0.567<br>0.507<br>0.452<br>0.404                                       | <b>13%</b><br>0.885<br>0.783<br>0.693<br>0.613<br>0.543<br>0.480<br>0.425<br>0.376                                                | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519<br>0.456<br>0.400<br>0.351                                                                 | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497<br>0.432<br>0.376<br>0.327                                                                | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552<br>0.476<br>0.410<br>0.354<br>0.305                                                                | 17%<br>0.855<br>0.731<br>0.624<br>0.534<br>0.456<br>0.390<br>0.333<br>0.285                                                       | <b>18%</b><br>0.847<br>0.718<br>0.609<br>0.516<br>0.437<br>0.370<br>0.314<br>0.266                                                | <b>19%</b><br>0.840<br>0.706<br>0.593<br>0.499<br>0.419<br>0.352<br>0.296<br>0.249                                                         | 20%<br>0.833<br>0.694<br>0.579<br>0.482<br>0.402<br>0.335<br>0.279<br>0.233                                                       |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9                                     | 11%<br>0.901<br>0.812<br>0.731<br>0.659<br>0.593<br>0.535<br>0.482<br>0.434<br>0.391                                                                | 12%<br>0.893<br>0.797<br>0.712<br>0.636<br>0.567<br>0.507<br>0.452<br>0.404<br>0.361                                     | 13%<br>0.885<br>0.783<br>0.693<br>0.613<br>0.543<br>0.480<br>0.425<br>0.376<br>0.333                                              | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519<br>0.456<br>0.400<br>0.351<br>0.308                                                        | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497<br>0.432<br>0.376<br>0.327<br>0.284                                                       | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552<br>0.476<br>0.410<br>0.354<br>0.305<br>0.263                                                       | 17%<br>0.855<br>0.731<br>0.624<br>0.534<br>0.456<br>0.390<br>0.333<br>0.285<br>0.243                                              | 18%<br>0.847<br>0.718<br>0.609<br>0.516<br>0.437<br>0.370<br>0.370<br>0.314<br>0.266<br>0.225                                     | <b>19%</b><br>0.840<br>0.706<br>0.593<br>0.499<br>0.419<br>0.352<br>0.296<br>0.249<br>0.209                                                | 20%<br>0.833<br>0.694<br>0.579<br>0.482<br>0.402<br>0.335<br>0.279<br>0.233<br>0.194                                              |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10                               | 11%<br>0.901<br>0.812<br>0.731<br>0.659<br>0.593<br>0.535<br>0.482<br>0.482<br>0.434<br>0.391<br>0.352                                              | 12%<br>0.893<br>0.797<br>0.712<br>0.636<br>0.567<br>0.507<br>0.452<br>0.404<br>0.361<br>0.322                            | 13%<br>0.885<br>0.783<br>0.693<br>0.613<br>0.543<br>0.480<br>0.425<br>0.376<br>0.333<br>0.295                                     | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519<br>0.456<br>0.400<br>0.351<br>0.308<br>0.270                                               | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497<br>0.432<br>0.376<br>0.327<br>0.284<br>0.247                                              | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552<br>0.476<br>0.410<br>0.354<br>0.305<br>0.263<br>0.227                                              | 17%<br>0.855<br>0.731<br>0.624<br>0.534<br>0.456<br>0.390<br>0.333<br>0.285<br>0.243<br>0.208                                     | 18%<br>0.847<br>0.718<br>0.609<br>0.516<br>0.437<br>0.370<br>0.314<br>0.266<br>0.225<br>0.191                                     | <b>19%</b><br>0.840<br>0.706<br>0.593<br>0.499<br>0.419<br>0.352<br>0.296<br>0.249<br>0.209<br>0.176                                       | 20%<br>0.833<br>0.694<br>0.579<br>0.482<br>0.402<br>0.335<br>0.279<br>0.233<br>0.194<br>0.162                                     |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10                               | 11%<br>0.901<br>0.812<br>0.731<br>0.659<br>0.593<br>0.535<br>0.482<br>0.434<br>0.391<br>0.352                                                       | 12%<br>0.893<br>0.797<br>0.712<br>0.636<br>0.567<br>0.507<br>0.452<br>0.404<br>0.361<br>0.322                            | 13%<br>0.885<br>0.783<br>0.693<br>0.613<br>0.543<br>0.480<br>0.425<br>0.376<br>0.333<br>0.295                                     | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519<br>0.456<br>0.400<br>0.351<br>0.308<br>0.270                                               | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497<br>0.432<br>0.376<br>0.327<br>0.284<br>0.247                                              | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552<br>0.476<br>0.410<br>0.354<br>0.305<br>0.263<br>0.227                                              | 17%<br>0.855<br>0.731<br>0.624<br>0.534<br>0.456<br>0.390<br>0.333<br>0.285<br>0.243<br>0.208                                     | 18%<br>0.847<br>0.718<br>0.609<br>0.516<br>0.437<br>0.370<br>0.314<br>0.266<br>0.225<br>0.191                                     | <b>19%</b><br>0.840<br>0.706<br>0.593<br>0.499<br>0.419<br>0.352<br>0.296<br>0.249<br>0.209<br>0.176                                       | 20%<br>0.833<br>0.694<br>0.579<br>0.482<br>0.402<br>0.335<br>0.279<br>0.233<br>0.194<br>0.162                                     |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11                         | 11%<br>0.901<br>0.812<br>0.731<br>0.659<br>0.593<br>0.535<br>0.482<br>0.434<br>0.391<br>0.352<br>0.317                                              | 12%<br>0.893<br>0.797<br>0.712<br>0.636<br>0.567<br>0.507<br>0.452<br>0.404<br>0.361<br>0.322<br>0.287                   | 13%<br>0.885<br>0.783<br>0.693<br>0.613<br>0.543<br>0.480<br>0.425<br>0.376<br>0.333<br>0.295<br>0.261                            | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519<br>0.456<br>0.400<br>0.351<br>0.308<br>0.270<br>0.237                                      | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497<br>0.432<br>0.376<br>0.327<br>0.284<br>0.247<br>0.215<br>0.497                            | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552<br>0.476<br>0.410<br>0.354<br>0.305<br>0.263<br>0.227<br>0.195<br>0.452                            | 17%<br>0.855<br>0.731<br>0.624<br>0.534<br>0.456<br>0.390<br>0.333<br>0.285<br>0.243<br>0.208<br>0.178<br>0.178                   | 18%<br>0.847<br>0.718<br>0.609<br>0.516<br>0.437<br>0.370<br>0.314<br>0.266<br>0.225<br>0.191<br>0.162                            | <b>19%</b><br>0.840<br>0.706<br>0.593<br>0.499<br>0.419<br>0.352<br>0.296<br>0.249<br>0.209<br>0.176<br>0.148                              | 20%<br>0.833<br>0.694<br>0.579<br>0.482<br>0.402<br>0.335<br>0.279<br>0.233<br>0.194<br>0.162<br>0.135                            |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12                   | 11%<br>0.901<br>0.812<br>0.731<br>0.659<br>0.593<br>0.535<br>0.482<br>0.434<br>0.391<br>0.352<br>0.317<br>0.286                                     | 12%<br>0.893<br>0.797<br>0.712<br>0.636<br>0.567<br>0.507<br>0.452<br>0.404<br>0.361<br>0.322<br>0.287<br>0.257          | 13%<br>0.885<br>0.783<br>0.693<br>0.613<br>0.543<br>0.480<br>0.425<br>0.376<br>0.333<br>0.295<br>0.261<br>0.231                   | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519<br>0.456<br>0.400<br>0.351<br>0.308<br>0.270<br>0.237<br>0.208                             | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497<br>0.432<br>0.376<br>0.327<br>0.284<br>0.247<br>0.215<br>0.187<br>0.452                   | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552<br>0.476<br>0.410<br>0.354<br>0.305<br>0.263<br>0.227<br>0.195<br>0.168<br>0.415                   | 17%<br>0.855<br>0.731<br>0.624<br>0.534<br>0.456<br>0.390<br>0.333<br>0.285<br>0.243<br>0.208<br>0.178<br>0.152                   | 18%<br>0.847<br>0.718<br>0.609<br>0.516<br>0.437<br>0.370<br>0.314<br>0.266<br>0.225<br>0.191<br>0.162<br>0.137                   | 19%<br>0.840<br>0.706<br>0.593<br>0.499<br>0.419<br>0.352<br>0.296<br>0.249<br>0.209<br>0.176<br>0.148<br>0.124                            | 20%<br>0.833<br>0.694<br>0.579<br>0.482<br>0.402<br>0.335<br>0.279<br>0.233<br>0.194<br>0.162<br>0.135<br>0.112                   |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13             | 11%<br>0.901<br>0.812<br>0.731<br>0.659<br>0.593<br>0.535<br>0.482<br>0.434<br>0.391<br>0.352<br>0.317<br>0.286<br>0.258                            | 12%<br>0.893<br>0.797<br>0.712<br>0.636<br>0.567<br>0.452<br>0.404<br>0.361<br>0.322<br>0.287<br>0.229<br>0.229          | 13%<br>0.885<br>0.783<br>0.693<br>0.613<br>0.543<br>0.480<br>0.425<br>0.376<br>0.333<br>0.295<br>0.261<br>0.231<br>0.204          | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519<br>0.456<br>0.400<br>0.351<br>0.308<br>0.270<br>0.237<br>0.208<br>0.182                    | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497<br>0.432<br>0.376<br>0.327<br>0.284<br>0.247<br>0.215<br>0.187<br>0.163<br>0.411          | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552<br>0.476<br>0.410<br>0.354<br>0.305<br>0.263<br>0.227<br>0.195<br>0.168<br>0.145<br>0.425          | 17%<br>0.855<br>0.731<br>0.624<br>0.534<br>0.456<br>0.390<br>0.333<br>0.285<br>0.243<br>0.208<br>0.178<br>0.152<br>0.130          | 18%<br>0.847<br>0.718<br>0.609<br>0.516<br>0.437<br>0.370<br>0.314<br>0.266<br>0.225<br>0.191<br>0.162<br>0.137<br>0.116          | 19%<br>0.840<br>0.706<br>0.593<br>0.499<br>0.419<br>0.352<br>0.296<br>0.249<br>0.209<br>0.176<br>0.148<br>0.124<br>0.104                   | 20%<br>0.833<br>0.694<br>0.579<br>0.482<br>0.402<br>0.335<br>0.279<br>0.233<br>0.194<br>0.162<br>0.135<br>0.112<br>0.093<br>0.652 |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>11<br>12<br>13<br>14 | 11%<br>0.901<br>0.812<br>0.731<br>0.659<br>0.593<br>0.593<br>0.535<br>0.482<br>0.482<br>0.434<br>0.391<br>0.352<br>0.317<br>0.286<br>0.258<br>0.232 | 12%<br>0.893<br>0.797<br>0.712<br>0.636<br>0.567<br>0.507<br>0.452<br>0.404<br>0.361<br>0.322<br>0.287<br>0.229<br>0.205 | 13%<br>0.885<br>0.783<br>0.693<br>0.613<br>0.543<br>0.480<br>0.425<br>0.376<br>0.333<br>0.295<br>0.261<br>0.231<br>0.204<br>0.181 | 14%<br>0.877<br>0.769<br>0.675<br>0.592<br>0.519<br>0.456<br>0.400<br>0.351<br>0.308<br>0.270<br>0.237<br>0.208<br>0.182<br>0.160<br>0.4 12 | Discount<br>15%<br>0.870<br>0.756<br>0.658<br>0.572<br>0.497<br>0.432<br>0.376<br>0.327<br>0.284<br>0.247<br>0.215<br>0.187<br>0.163<br>0.141<br>0.432 | t rate (r)<br>16%<br>0.862<br>0.743<br>0.641<br>0.552<br>0.476<br>0.410<br>0.354<br>0.305<br>0.263<br>0.227<br>0.195<br>0.168<br>0.145<br>0.125<br>0.125 | 17%<br>0.855<br>0.731<br>0.624<br>0.534<br>0.456<br>0.390<br>0.333<br>0.285<br>0.243<br>0.208<br>0.178<br>0.152<br>0.130<br>0.111 | 18%<br>0.847<br>0.718<br>0.609<br>0.516<br>0.437<br>0.370<br>0.314<br>0.266<br>0.225<br>0.191<br>0.162<br>0.137<br>0.116<br>0.099 | 19%<br>0.840<br>0.706<br>0.593<br>0.499<br>0.419<br>0.352<br>0.296<br>0.249<br>0.209<br>0.176<br>0.148<br>0.124<br>0.124<br>0.104<br>0.088 | 20%<br>0.833<br>0.694<br>0.579<br>0.482<br>0.402<br>0.335<br>0.279<br>0.233<br>0.194<br>0.162<br>0.135<br>0.112<br>0.093<br>0.078 |

# Annuity table

Present value of an annuity of 1, i.e.  $\frac{1-(1+r)^{-n}}{r}$ 

#### Where r = discount rate

n = number of periods

|                                                                                           |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   | Discount                                                                                                                                               | rate (r)                                                                                                                                              |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |
|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Periods                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                                        |                                                                                                                                                       |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |
| (n)                                                                                       | 1%                                                                                                                                | 2%                                                                                                                                | 3%                                                                                                                                | 4%                                                                                                                                | 5%                                                                                                                                                     | 6%                                                                                                                                                    | 7%                                                                                                                                | 8%                                                                                                                                | 9%                                                                                                                                | 10%                                                                                                                               |
| 1                                                                                         | 0.990                                                                                                                             | 0.980                                                                                                                             | 0.971                                                                                                                             | 0.962                                                                                                                             | 0.952                                                                                                                                                  | 0.943                                                                                                                                                 | 0.935                                                                                                                             | 0.926                                                                                                                             | 0.917                                                                                                                             | 0.909                                                                                                                             |
| 2                                                                                         | 1.970                                                                                                                             | 1.942                                                                                                                             | 1.913                                                                                                                             | 1.886                                                                                                                             | 1.859                                                                                                                                                  | 1.833                                                                                                                                                 | 1.808                                                                                                                             | 1.783                                                                                                                             | 1.759                                                                                                                             | 1.736                                                                                                                             |
| 3                                                                                         | 2.941                                                                                                                             | 2.884                                                                                                                             | 2.829                                                                                                                             | 2.775                                                                                                                             | 2.723                                                                                                                                                  | 2.673                                                                                                                                                 | 2.624                                                                                                                             | 2.577                                                                                                                             | 2.531                                                                                                                             | 2.487                                                                                                                             |
| 4                                                                                         | 3.902                                                                                                                             | 3.808                                                                                                                             | 3.717                                                                                                                             | 3.630                                                                                                                             | 3.546                                                                                                                                                  | 3.465                                                                                                                                                 | 3.387                                                                                                                             | 3.312                                                                                                                             | 3.240                                                                                                                             | 3.170                                                                                                                             |
| 5                                                                                         | 4.853                                                                                                                             | 4.713                                                                                                                             | 4.580                                                                                                                             | 4.452                                                                                                                             | 4.329                                                                                                                                                  | 4.212                                                                                                                                                 | 4.100                                                                                                                             | 3.993                                                                                                                             | 3.890                                                                                                                             | 3.791                                                                                                                             |
|                                                                                           |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                                        |                                                                                                                                                       |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |
| 6                                                                                         | 5.795                                                                                                                             | 5.601                                                                                                                             | 5.417                                                                                                                             | 5.242                                                                                                                             | 5.076                                                                                                                                                  | 4.917                                                                                                                                                 | 4.767                                                                                                                             | 4.623                                                                                                                             | 4.486                                                                                                                             | 4.355                                                                                                                             |
| 7                                                                                         | 6.728                                                                                                                             | 6.472                                                                                                                             | 6.230                                                                                                                             | 6.002                                                                                                                             | 5.786                                                                                                                                                  | 5.582                                                                                                                                                 | 5.389                                                                                                                             | 5.206                                                                                                                             | 5.033                                                                                                                             | 4.868                                                                                                                             |
| 8                                                                                         | 7.652                                                                                                                             | 7.325                                                                                                                             | 7.020                                                                                                                             | 6.733                                                                                                                             | 6.463                                                                                                                                                  | 6.210                                                                                                                                                 | 5.971                                                                                                                             | 5.747                                                                                                                             | 5.535                                                                                                                             | 5.335                                                                                                                             |
| 9                                                                                         | 8.566                                                                                                                             | 8.162                                                                                                                             | 7.786                                                                                                                             | 7.435                                                                                                                             | 7.108                                                                                                                                                  | 6.802                                                                                                                                                 | 6.515                                                                                                                             | 6.247                                                                                                                             | 5.995                                                                                                                             | 5.759                                                                                                                             |
| 10                                                                                        | 9.471                                                                                                                             | 8.983                                                                                                                             | 8.530                                                                                                                             | 8.111                                                                                                                             | 7.722                                                                                                                                                  | 7.360                                                                                                                                                 | 7.024                                                                                                                             | 6.710                                                                                                                             | 6.418                                                                                                                             | 6.145                                                                                                                             |
|                                                                                           |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                                        |                                                                                                                                                       |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |
| 11                                                                                        | 10.368                                                                                                                            | 9.787                                                                                                                             | 9.253                                                                                                                             | 8.760                                                                                                                             | 8.306                                                                                                                                                  | 7.887                                                                                                                                                 | 7.499                                                                                                                             | 7.139                                                                                                                             | 6.805                                                                                                                             | 8.495                                                                                                                             |
| 12                                                                                        | 11.255                                                                                                                            | 10.575                                                                                                                            | 9.954                                                                                                                             | 9.385                                                                                                                             | 8.863                                                                                                                                                  | 8.384                                                                                                                                                 | 7.943                                                                                                                             | 7.536                                                                                                                             | 7.161                                                                                                                             | 6.814                                                                                                                             |
| 13                                                                                        | 12.134                                                                                                                            | 11.348                                                                                                                            | 10.635                                                                                                                            | 9.986                                                                                                                             | 9.394                                                                                                                                                  | 8.853                                                                                                                                                 | 8.358                                                                                                                             | 7.904                                                                                                                             | 7.487                                                                                                                             | 7.103                                                                                                                             |
| 14                                                                                        | 13.004                                                                                                                            | 12.106                                                                                                                            | 11.296                                                                                                                            | 10.563                                                                                                                            | 9.899                                                                                                                                                  | 9.295                                                                                                                                                 | 8.745                                                                                                                             | 8.244                                                                                                                             | 7.786                                                                                                                             | 7.367                                                                                                                             |
| 15                                                                                        | 13.865                                                                                                                            | 12.849                                                                                                                            | 11.938                                                                                                                            | 11.118                                                                                                                            | 10.380                                                                                                                                                 | 9.712                                                                                                                                                 | 9.108                                                                                                                             | 8.559                                                                                                                             | 8.061                                                                                                                             | 7.606                                                                                                                             |
|                                                                                           |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                                        |                                                                                                                                                       |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |
| -                                                                                         |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                                        |                                                                                                                                                       |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |
|                                                                                           |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   | Discount                                                                                                                                               | rate (r)                                                                                                                                              |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |
| Periods                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   | Discount                                                                                                                                               | rate (r)                                                                                                                                              |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |                                                                                                                                   |
| Periods<br>(n)                                                                            | 11%                                                                                                                               | 12%                                                                                                                               | 13%                                                                                                                               | 14%                                                                                                                               | Discount<br>15%                                                                                                                                        | rate (r)<br>16%                                                                                                                                       | 17%                                                                                                                               | 18%                                                                                                                               | 19%                                                                                                                               | 20%                                                                                                                               |
| Periods<br>(n)<br>1                                                                       | <b>11%</b><br>0.901                                                                                                               | <b>12%</b><br>0.893                                                                                                               | <b>13%</b><br>0.885                                                                                                               | <b>14%</b><br>0.877                                                                                                               | Discount<br>15%<br>0.870                                                                                                                               | rate (r)<br>16%<br>0.862                                                                                                                              | <b>17%</b><br>0.855                                                                                                               | <b>18%</b><br>0.847                                                                                                               | <b>19%</b><br>0.840                                                                                                               | <b>20%</b><br>0.833                                                                                                               |
| Periods<br>(n)<br>1<br>2                                                                  | <b>11%</b><br>0.901<br>1.713                                                                                                      | <b>12%</b><br>0.893<br>1.690                                                                                                      | <b>13%</b><br>0.885<br>1.668                                                                                                      | <b>14%</b><br>0.877<br>1.647                                                                                                      | Discount<br>15%<br>0.870<br>1.626                                                                                                                      | rate (r)<br>16%<br>0.862<br>1.605                                                                                                                     | <b>17%</b><br>0.855<br>1.585                                                                                                      | <b>18%</b><br>0.847<br>1.566                                                                                                      | <b>19%</b><br>0.840<br>1.547                                                                                                      | <b>20%</b><br>0.833<br>1.528                                                                                                      |
| Periods<br>(n)<br>1<br>2<br>3                                                             | <b>11%</b><br>0.901<br>1.713<br>2.444                                                                                             | <b>12%</b><br>0.893<br>1.690<br>2.402                                                                                             | <b>13%</b><br>0.885<br>1.668<br>2.361                                                                                             | <b>14%</b><br>0.877<br>1.647<br>2.322                                                                                             | Discount<br>15%<br>0.870<br>1.626<br>2.283                                                                                                             | rate (r)<br>16%<br>0.862<br>1.605<br>2.246                                                                                                            | <b>17%</b><br>0.855<br>1.585<br>2.210                                                                                             | <b>18%</b><br>0.847<br>1.566<br>2.174                                                                                             | <b>19%</b><br>0.840<br>1.547<br>2.140                                                                                             | <b>20%</b><br>0.833<br>1.528<br>2.106                                                                                             |
| Periods<br>(n)<br>1<br>2<br>3<br>4                                                        | <b>11%</b><br>0.901<br>1.713<br>2.444<br>3.102                                                                                    | <b>12%</b><br>0.893<br>1.690<br>2.402<br>3.037                                                                                    | <b>13%</b><br>0.885<br>1.668<br>2.361<br>2.974                                                                                    | <b>14%</b><br>0.877<br>1.647<br>2.322<br>2.914                                                                                    | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855                                                                                                    | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798                                                                                                   | <b>17%</b><br>0.855<br>1.585<br>2.210<br>2.743                                                                                    | <b>18%</b><br>0.847<br>1.566<br>2.174<br>2.690                                                                                    | <b>19%</b><br>0.840<br>1.547<br>2.140<br>2.639                                                                                    | <b>20%</b><br>0.833<br>1.528<br>2.106<br>2.589                                                                                    |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5                                                   | 11%<br>0.901<br>1.713<br>2.444<br>3.102<br>3.696                                                                                  | <b>12%</b><br>0.893<br>1.690<br>2.402<br>3.037<br>3.605                                                                           | <b>13%</b><br>0.885<br>1.668<br>2.361<br>2.974<br>3.517                                                                           | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433                                                                                  | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352                                                                                           | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274                                                                                          | <b>17%</b><br>0.855<br>1.585<br>2.210<br>2.743<br>3.199                                                                           | <b>18%</b><br>0.847<br>1.566<br>2.174<br>2.690<br>3.127                                                                           | <b>19%</b><br>0.840<br>1.547<br>2.140<br>2.639<br>3.058                                                                           | <b>20%</b><br>0.833<br>1.528<br>2.106<br>2.589<br>2.991                                                                           |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5                                                   | <b>11%</b><br>0.901<br>1.713<br>2.444<br>3.102<br>3.696                                                                           | <b>12%</b><br>0.893<br>1.690<br>2.402<br>3.037<br>3.605                                                                           | <b>13%</b><br>0.885<br>1.668<br>2.361<br>2.974<br>3.517                                                                           | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433                                                                                  | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352                                                                                           | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274                                                                                          | <b>17%</b><br>0.855<br>1.585<br>2.210<br>2.743<br>3.199                                                                           | <b>18%</b><br>0.847<br>1.566<br>2.174<br>2.690<br>3.127                                                                           | <b>19%</b><br>0.840<br>1.547<br>2.140<br>2.639<br>3.058                                                                           | <b>20%</b><br>0.833<br>1.528<br>2.106<br>2.589<br>2.991                                                                           |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6                                              | 11%<br>0.901<br>1.713<br>2.444<br>3.102<br>3.696<br>4.231                                                                         | <b>12%</b><br>0.893<br>1.690<br>2.402<br>3.037<br>3.605<br>4.111                                                                  | <b>13%</b><br>0.885<br>1.668<br>2.361<br>2.974<br>3.517<br>3.998                                                                  | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433<br>3.889                                                                         | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352<br>3.784                                                                                  | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274<br>3.685                                                                                 | <b>17%</b><br>0.855<br>1.585<br>2.210<br>2.743<br>3.199<br>3.589                                                                  | <b>18%</b><br>0.847<br>1.566<br>2.174<br>2.690<br>3.127<br>3.498                                                                  | <b>19%</b><br>0.840<br>1.547<br>2.140<br>2.639<br>3.058<br>3.410                                                                  | 20%<br>0.833<br>1.528<br>2.106<br>2.589<br>2.991<br>3.326                                                                         |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7                                         | 11%<br>0.901<br>1.713<br>2.444<br>3.102<br>3.696<br>4.231<br>4.712                                                                | <b>12%</b><br>0.893<br>1.690<br>2.402<br>3.037<br>3.605<br>4.111<br>4.564                                                         | 13%<br>0.885<br>1.668<br>2.361<br>2.974<br>3.517<br>3.998<br>4.423                                                                | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433<br>3.889<br>4.288                                                                | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352<br>3.784<br>4.160                                                                         | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274<br>3.685<br>4.039                                                                        | <b>17%</b><br>0.855<br>1.585<br>2.210<br>2.743<br>3.199<br>3.589<br>3.922                                                         | 18%<br>0.847<br>1.566<br>2.174<br>2.690<br>3.127<br>3.498<br>3.812                                                                | 19%<br>0.840<br>1.547<br>2.140<br>2.639<br>3.058<br>3.410<br>3.706                                                                | 20%<br>0.833<br>1.528<br>2.106<br>2.589<br>2.991<br>3.326<br>3.605                                                                |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8                                    | 11%<br>0.901<br>1.713<br>2.444<br>3.102<br>3.696<br>4.231<br>4.712<br>5.146                                                       | <b>12%</b><br>0.893<br>1.690<br>2.402<br>3.037<br>3.605<br>4.111<br>4.564<br>4.968                                                | 13%<br>0.885<br>1.668<br>2.361<br>2.974<br>3.517<br>3.998<br>4.423<br>4.799                                                       | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433<br>3.889<br>4.288<br>4.639                                                       | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352<br>3.784<br>4.160<br>4.487                                                                | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274<br>3.685<br>4.039<br>4.344                                                               | 17%<br>0.855<br>1.585<br>2.210<br>2.743<br>3.199<br>3.589<br>3.922<br>4.207                                                       | 18%<br>0.847<br>1.566<br>2.174<br>2.690<br>3.127<br>3.498<br>3.812<br>4.078                                                       | <b>19%</b><br>0.840<br>1.547<br>2.140<br>2.639<br>3.058<br>3.410<br>3.706<br>3.954                                                | 20%<br>0.833<br>1.528<br>2.106<br>2.589<br>2.991<br>3.326<br>3.605<br>3.837                                                       |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9                               | 11%<br>0.901<br>1.713<br>2.444<br>3.102<br>3.696<br>4.231<br>4.712<br>5.146<br>5.537                                              | <b>12%</b><br>0.893<br>1.690<br>2.402<br>3.037<br>3.605<br>4.111<br>4.564<br>4.968<br>5.328                                       | 13%<br>0.885<br>1.668<br>2.361<br>2.974<br>3.517<br>3.998<br>4.423<br>4.799<br>5.132                                              | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433<br>3.889<br>4.288<br>4.639<br>4.946                                              | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352<br>3.784<br>4.160<br>4.487<br>4.772                                                       | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274<br>3.685<br>4.039<br>4.344<br>4.607                                                      | 17%<br>0.855<br>1.585<br>2.210<br>2.743<br>3.199<br>3.589<br>3.922<br>4.207<br>4.451                                              | 18%<br>0.847<br>1.566<br>2.174<br>2.690<br>3.127<br>3.498<br>3.812<br>4.078<br>4.303                                              | <b>19%</b><br>0.840<br>1.547<br>2.140<br>2.639<br>3.058<br>3.410<br>3.706<br>3.954<br>4.163                                       | 20%<br>0.833<br>1.528<br>2.106<br>2.589<br>2.991<br>3.326<br>3.605<br>3.837<br>4.031                                              |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10                         | 11%<br>0.901<br>1.713<br>2.444<br>3.102<br>3.696<br>4.231<br>4.712<br>5.146<br>5.537<br>5.889                                     | <b>12%</b><br>0.893<br>1.690<br>2.402<br>3.037<br>3.605<br>4.111<br>4.564<br>4.968<br>5.328<br>5.650                              | 13%<br>0.885<br>1.668<br>2.361<br>2.974<br>3.517<br>3.998<br>4.423<br>4.799<br>5.132<br>5.426                                     | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433<br>3.889<br>4.288<br>4.639<br>4.946<br>5.216                                     | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352<br>3.784<br>4.160<br>4.487<br>4.772<br>5.019                                              | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274<br>3.685<br>4.039<br>4.344<br>4.607<br>4.833                                             | 17%<br>0.855<br>1.585<br>2.210<br>2.743<br>3.199<br>3.589<br>3.922<br>4.207<br>4.451<br>4.659                                     | 18%<br>0.847<br>1.566<br>2.174<br>2.690<br>3.127<br>3.498<br>3.812<br>4.078<br>4.303<br>4.494                                     | 19%<br>0.840<br>1.547<br>2.140<br>2.639<br>3.058<br>3.410<br>3.706<br>3.954<br>4.163<br>4.339                                     | 20%<br>0.833<br>1.528<br>2.106<br>2.589<br>2.991<br>3.326<br>3.605<br>3.837<br>4.031<br>4.192                                     |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10                         | 11%<br>0.901<br>1.713<br>2.444<br>3.102<br>3.696<br>4.231<br>4.712<br>5.146<br>5.537<br>5.889                                     | <b>12%</b><br>0.893<br>1.690<br>2.402<br>3.037<br>3.605<br>4.111<br>4.564<br>4.968<br>5.328<br>5.650                              | 13%<br>0.885<br>1.668<br>2.361<br>2.974<br>3.517<br>3.998<br>4.423<br>4.799<br>5.132<br>5.426                                     | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433<br>3.889<br>4.288<br>4.639<br>4.946<br>5.216                                     | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352<br>3.784<br>4.160<br>4.487<br>4.772<br>5.019<br>5.024                                     | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274<br>3.685<br>4.039<br>4.344<br>4.607<br>4.833<br>5.020                                    | 17%<br>0.855<br>1.585<br>2.210<br>2.743<br>3.199<br>3.589<br>3.922<br>4.207<br>4.451<br>4.659                                     | 18%<br>0.847<br>1.566<br>2.174<br>2.690<br>3.127<br>3.498<br>3.812<br>4.078<br>4.303<br>4.494                                     | 19%<br>0.840<br>1.547<br>2.140<br>2.639<br>3.058<br>3.410<br>3.706<br>3.954<br>4.163<br>4.339                                     | 20%<br>0.833<br>1.528<br>2.106<br>2.589<br>2.991<br>3.326<br>3.605<br>3.837<br>4.031<br>4.192                                     |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11                   | 11%<br>0.901<br>1.713<br>2.444<br>3.102<br>3.696<br>4.231<br>4.712<br>5.146<br>5.537<br>5.889<br>6.207<br>6.403                   | 12%<br>0.893<br>1.690<br>2.402<br>3.037<br>3.605<br>4.111<br>4.564<br>4.968<br>5.328<br>5.650<br>5.938<br>6.104                   | <b>13%</b><br>0.885<br>1.668<br>2.361<br>2.974<br>3.517<br>3.998<br>4.423<br>4.799<br>5.132<br>5.426<br>5.687                     | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433<br>3.889<br>4.288<br>4.639<br>4.946<br>5.216<br>5.453<br>5.453                   | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352<br>3.784<br>4.160<br>4.487<br>4.772<br>5.019<br>5.234<br>5.431                            | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274<br>3.685<br>4.039<br>4.344<br>4.607<br>4.833<br>5.029<br>5.107                           | 17%<br>0.855<br>1.585<br>2.210<br>2.743<br>3.199<br>3.589<br>3.922<br>4.207<br>4.451<br>4.659<br>4.836<br>4.058                   | 18%<br>0.847<br>1.566<br>2.174<br>2.690<br>3.127<br>3.498<br>3.812<br>4.078<br>4.303<br>4.494<br>4.656<br>4.702                   | 19%<br>0.840<br>1.547<br>2.140<br>2.639<br>3.058<br>3.410<br>3.706<br>3.954<br>4.163<br>4.339<br>4.486<br>4.611                   | 20%<br>0.833<br>1.528<br>2.106<br>2.589<br>2.991<br>3.326<br>3.605<br>3.837<br>4.031<br>4.192<br>4.327<br>4.620                   |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12             | 11%<br>0.901<br>1.713<br>2.444<br>3.102<br>3.696<br>4.231<br>4.712<br>5.146<br>5.537<br>5.889<br>6.207<br>6.492<br>6.750          | 12%<br>0.893<br>1.690<br>2.402<br>3.037<br>3.605<br>4.111<br>4.564<br>4.968<br>5.328<br>5.650<br>5.938<br>6.194                   | 13%<br>0.885<br>1.668<br>2.361<br>2.974<br>3.517<br>3.998<br>4.423<br>4.799<br>5.132<br>5.426<br>5.687<br>5.918<br>6.132          | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433<br>3.889<br>4.288<br>4.639<br>4.288<br>4.639<br>4.946<br>5.216<br>5.453<br>5.660 | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352<br>3.784<br>4.160<br>4.487<br>4.772<br>5.019<br>5.234<br>5.421<br>5.622                   | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274<br>3.685<br>4.039<br>4.344<br>4.607<br>4.833<br>5.029<br>5.197<br>5.223                  | 17%<br>0.855<br>1.585<br>2.210<br>2.743<br>3.199<br>3.589<br>3.922<br>4.207<br>4.451<br>4.659<br>4.836<br>4.968<br>5.110          | 18%<br>0.847<br>1.566<br>2.174<br>2.690<br>3.127<br>3.498<br>3.812<br>4.078<br>4.303<br>4.494<br>4.656<br>4.793<br>4.610          | 19%<br>0.840<br>1.547<br>2.140<br>2.639<br>3.058<br>3.410<br>3.706<br>3.954<br>4.163<br>4.339<br>4.486<br>4.611                   | 20%<br>0.833<br>1.528<br>2.106<br>2.589<br>2.991<br>3.326<br>3.605<br>3.837<br>4.031<br>4.192<br>4.327<br>4.439                   |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13       | 11%<br>0.901<br>1.713<br>2.444<br>3.102<br>3.696<br>4.231<br>4.712<br>5.146<br>5.537<br>5.889<br>6.207<br>6.492<br>6.750          | 12%<br>0.893<br>1.690<br>2.402<br>3.037<br>3.605<br>4.111<br>4.564<br>4.968<br>5.328<br>5.650<br>5.938<br>6.194<br>6.424          | 13%<br>0.885<br>1.668<br>2.361<br>2.974<br>3.517<br>3.998<br>4.423<br>4.799<br>5.132<br>5.426<br>5.687<br>5.918<br>6.122          | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433<br>3.889<br>4.288<br>4.639<br>4.946<br>5.216<br>5.453<br>5.660<br>5.842<br>6.002 | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352<br>3.784<br>4.160<br>4.487<br>4.772<br>5.019<br>5.234<br>5.421<br>5.583<br>5.724          | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274<br>3.685<br>4.039<br>4.344<br>4.607<br>4.833<br>5.029<br>5.197<br>5.342<br>5.622         | 17%<br>0.855<br>1.585<br>2.210<br>2.743<br>3.199<br>3.589<br>3.922<br>4.207<br>4.451<br>4.659<br>4.836<br>4.968<br>5.118          | 18%<br>0.847<br>1.566<br>2.174<br>2.690<br>3.127<br>3.498<br>3.812<br>4.078<br>4.303<br>4.494<br>4.656<br>4.793<br>4.910          | 19%<br>0.840<br>1.547<br>2.140<br>2.639<br>3.058<br>3.410<br>3.706<br>3.954<br>4.163<br>4.339<br>4.486<br>4.611<br>4.715          | 20%<br>0.833<br>1.528<br>2.106<br>2.589<br>2.991<br>3.326<br>3.605<br>3.837<br>4.031<br>4.192<br>4.327<br>4.439<br>4.533          |
| Periods<br>(n)<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14 | 11%<br>0.901<br>1.713<br>2.444<br>3.102<br>3.696<br>4.231<br>4.712<br>5.146<br>5.537<br>5.889<br>6.207<br>6.492<br>6.750<br>6.982 | 12%<br>0.893<br>1.690<br>2.402<br>3.037<br>3.605<br>4.111<br>4.564<br>4.968<br>5.328<br>5.650<br>5.938<br>6.194<br>6.424<br>6.628 | 13%<br>0.885<br>1.668<br>2.361<br>2.974<br>3.517<br>3.998<br>4.423<br>4.799<br>5.132<br>5.426<br>5.687<br>5.918<br>6.122<br>6.302 | 14%<br>0.877<br>1.647<br>2.322<br>2.914<br>3.433<br>3.889<br>4.288<br>4.639<br>4.946<br>5.216<br>5.453<br>5.660<br>5.842<br>6.002 | Discount<br>15%<br>0.870<br>1.626<br>2.283<br>2.855<br>3.352<br>3.784<br>4.160<br>4.487<br>4.772<br>5.019<br>5.234<br>5.421<br>5.583<br>5.724<br>5.012 | rate (r)<br>16%<br>0.862<br>1.605<br>2.246<br>2.798<br>3.274<br>3.685<br>4.039<br>4.344<br>4.607<br>4.833<br>5.029<br>5.197<br>5.342<br>5.468<br>5.55 | 17%<br>0.855<br>1.585<br>2.210<br>2.743<br>3.199<br>3.589<br>3.922<br>4.207<br>4.451<br>4.659<br>4.836<br>4.968<br>5.118<br>5.229 | 18%<br>0.847<br>1.566<br>2.174<br>2.690<br>3.127<br>3.498<br>3.812<br>4.078<br>4.303<br>4.494<br>4.656<br>4.793<br>4.910<br>5.008 | 19%<br>0.840<br>1.547<br>2.140<br>2.639<br>3.058<br>3.410<br>3.706<br>3.954<br>4.163<br>4.339<br>4.486<br>4.611<br>4.715<br>4.802 | 20%<br>0.833<br>1.528<br>2.106<br>2.589<br>2.991<br>3.326<br>3.605<br>3.837<br>4.031<br>4.192<br>4.327<br>4.439<br>4.533<br>4.611 |

# **SECTION A**

## ALL 35 QUESTIONS ARE COMPULSORY AND MUST BE ATTEMPTED

#### 1 Which of the following statements about fixed costs is true?

|                                                                   | Tick the true statements |
|-------------------------------------------------------------------|--------------------------|
| Fixed costs are constant per unit of output.                      |                          |
| Fixed costs are constant in total when production volume changes. |                          |
| Fixed costs are outside the control of management.                |                          |

2 A company orders in components from an outside supplier. The components cost \$125 each, and 800 components are used in a year. The order cost is \$50 per order and the holding cost is \$8 per unit per year.

#### What would be the economic order quantity for these components?

- A 100
- B 26
- C 791
- D 16
- **3** A wine producer incurs the following three costs:

#### Which TWO of these are classified as distribution costs?

- A Rental of an off-site warehouse location.
- B Case storage costs (wine is stored on behalf of customers until delivery can take place).
- C Commission paid to wine brokers.
- D Cost of insurance for machinery.
- 4 A manufacturing company uses 28,000 components at an even rate during the year. Each order placed with the supplier of the components is for 1,500 components, which is the economic order quantity. The company holds a buffer inventory of 700 components. The annual cost of holding one component in inventory is \$3.

#### What is the total annual cost of holding inventory of the component?

- A \$2,250
- B \$3,300
- C \$4,350
- D \$4,500

- **5** Regression analysis has produced the following results from the batch production costs for each of the past 6 months:
  - ∑x 600
  - ∑y 950
  - ∑x<sup>2</sup> 53,000
  - ∑xy 88,560

Which of the following is the appropriate value for a and b in the regression line to 2 decimal places?

- a b
- A 143.33 0.15
- B 66.33 0.92
- C 0.15 143.33
- D 0.92 66.33

#### 6 Which of the following KPIs would be used to assess the risk level of a company?

- 1 Return on capital employed.
- 2 Gross profit percentage.
- 3 Acid test ratio.
- 4 Gearing ratio.
- A 1 and 2 only
- B 3 only
- C 4 only
- D 3 and 4 only
- Caz currently pays its direct production workers on a time basis, at a rate of \$8.20 an hour.
  In an effort to improve productivity, Caz is introducing a bonus based on (time taken ÷ time allowed) × time saved × rate per hour.

The standard time allowed for a worker in the assembly department to perform this particular operation once has been agreed at 45 minutes. In the first week of operation, an employee worked for a total of 45 hours and performed 99 operations.

#### The gross wages for this employee for that week, to 2 decimal places, is:

- A \$145.36
- B \$369.10
- C \$514.36
- D \$540.08

8 Below is a pie chart showing the colours of shirts ordered by one shop.



What is the angle of the wedge showing black shirts ordered?



**9** A division has a residual income of \$280,000 and a net profit before imputed interest of \$740,000.

If it uses a rate of 10% for computing imputed interest on its invested capital, what is its return on investment (ROI) to the nearest whole number?

- A 4%
- B 10%
- C 16%
- D 27%

#### The following information relates to questions 10 to 12.

A product is manufactured in two processes. Details for the second process in period 4 were as follows:

| Opening work-in-progress                     | Nil          |
|----------------------------------------------|--------------|
| Materials transferred from the first process | 4,000 litres |
| Output transferred to finished goods         | 2,900 litres |
| Closing work-in-progress                     | 1,100 litres |

Closing work-in-progress is 100% complete for material and 60% complete for labour and overheads.

The cost per unit equivalent has been calculated at \$3.32 per EU for materials and \$2.20 per EU for labour and overheads.

There were no losses in the period.

#### 10 The equivalent units of output for labour and overheads for the period were:

- A 2,900 EU
- B 3,440 EU
- C 3,560 EU
- D 3,800 EU

#### 11 What is the value of the closing work-in-progress?

- A \$2,649.60
- B \$3,353.60
- C \$5,104
- D \$7,852

#### 12 What is the value of output?

- A \$16,008
- B \$16,560
- C \$20,976
- D \$22,080

#### 13 Which of the following groups of workers would be classified as direct labour?

- A Builders for a construction company
- B Supervisors of a production line
- C Maintenance workers in a shoe factory
- D Canteen staff in a factory

#### ACCA F2 AND FMA: MANAGEMENT ACCOUNTING

#### 14 For which of the following is a cost centre manager responsible?

- A Costs only
- B Revenue only
- C Costs and revenues
- D Profit only

#### 15 Which of the following statements about variable costs is correct?

Variable costs are conventionally deemed to:

- A be constant per unit of output
- B vary per unit of output as production volume changes
- C vary in total when production volume is constant
- D vary in total, from period to period when production is constant
- **16** A company uses standard marginal costing. Last month the standard contribution on actual sales was \$25,000 and the following variances arose:

| Total variable costs variance      | \$3,000 adverse    |
|------------------------------------|--------------------|
| Sales price variance               | \$1,000 favourable |
| Sales volume contribution variance | \$1,500 adverse    |

#### What was the actual contribution for last month?



- 17 The most appropriate costing method to use by a company that makes individual products to order for customers is:
  - A Standard costing
  - B Job costing
  - C Process costing
  - D Service costing
- **18** A company has recorded the following costs and activity levels for the last two months:

|                        | Month 1 | Month 2 |
|------------------------|---------|---------|
| Activity level (units) | 15,000  | 18,000  |
| Total costs (\$)       | 82,500  | 93,000  |

#### What is the total cost at an activity level of 17,000?



**19** M plc makes a single product which has a budgeted production cost of \$38. This includes a fixed cost of \$6 per unit based upon budgeted production of 15,000 units per month. In October actual production was 9,000 units and Sales were 10,500 units. The actual profit for the period was \$44,000 prepared on a Marginal Costing basis.

#### If the profit statement were prepared using Absorption Costing the profit would be:

\$

#### 20 The essence of systematic sampling is that:

- A each element of the population has an equal chance of being chosen
- B members of various strata are selected by the interviewers up to predetermined limits
- C every nth member of the population is selected
- D every element of one definable sub-section of the population is selected
- **21** Budgeted production in a factory for next period is 2,600 units. Each unit requires two labour hours to make. Labour is paid \$16 per hour. Idle time represents 20% of the total labour time.

#### What is the budgeted total labour cost for the whole period?

- A \$66,560
- B \$83,200
- C \$99,840
- D \$104,000

#### 22 Which of the following are features of Activity Based Costing?

|                                                               | Tick the feature |
|---------------------------------------------------------------|------------------|
| It provides more accurate product costs.                      |                  |
| It is simple to apply.                                        |                  |
| It is a form of absorption costing.                           |                  |
| It is particularly useful when fixed overheads are very high. |                  |

**23** A company makes two products, Reds and Blues. Total fixed overheads to absorb during May are \$60,000. Budgeted production levels for Reds for May are 10,000 units. Twice as many Blues as Reds are to be produced. Each Red takes 1 hour of labour and each Blue takes 0.25 hours. Overheads are to be absorbed on a labour hour basis.

#### What is the overhead absorption rate for each finished Blue?

- A \$0.25 per unit
- B \$1 per unit
- C \$4 per unit
- D \$16 per unit

24 Solid plc manufactures a single product using two processes. During November process one opening work in progress was 600 kg, each being 75% complete as to materials and 45% complete as to conversion costs. Additional materials added in the month were 2,800 kg.

At the end of the month 3,000 kg transferred to process 2, Closing work in progress was 400 kg, 60% complete for materials and 40% complete for conversion.

The FIFO method of valuation is used.

#### The equivalent units in the month were:

|   | Materials | Conversion |
|---|-----------|------------|
| А | 3,020     | 2,970      |
| В | 2,790     | 2,890      |
| С | 3,280     | 3,230      |
| D | 2,830     | 2,960      |

# 25 Based on 20X1 as 100, use the information below to calculate the Laspeyre price index for 20X2.

The managers of the restaurant wish to develop an index number series for measuring changes in food prices. As an experiment, they have chosen four items in general use which are summarised below:

|                    | Prices per unit |      | Qua    | Quantities |  |
|--------------------|-----------------|------|--------|------------|--|
|                    | 20X1            | 20X2 | 20X1   | 20X2       |  |
| Milk (litres)      | 0.30            | 0.35 | 10,000 | 10,000     |  |
| Eggs (boxes)       | 1.00            | 1.25 | 4,000  | 6,000      |  |
| Olive Oil (litres) | 0.45            | 0.52 | 5,000  | 5,500      |  |
| Onions (kgs)       | 0.10            | 0.12 | 7,000  | 10,000     |  |

- A 85.30
- B 85.51
- C 120.00
- D 117.24
- **26** The following statements refer to qualities of good information:
  - 1 It should be communicated to the right person.
  - 2 It should be sufficiently accurate before it is used.
  - 3 It should be understandable by the recipient.

#### Which of the above statements are correct?

- A 1 and 2 only
- B 1 and 3 only
- C 2 and 3 only
- D 1, 2 and 3

- 27 Within target costing the analysis of factors affecting the cost of a product or service in order to devise a means of achieving the specified purpose most economically without compromising the quality and reliability of a product is called:
  - A Value analysis
  - B Esteem value
  - C Value engineering
  - D Utility value

# 28 When comparing the profits reported under absorption and marginal costing during a period when inventory has increased:

- A Absorption costing profits will be higher and closing inventory valuations lower than those under marginal costing.
- B Absorption costing profits will be higher and closing inventory valuations higher than those under marginal costing.
- C Marginal costing profits will be higher and closing inventory valuations lower than those under Absorption costing.
- D Marginal costing profits will be lower and closing inventory valuations higher than those under Absorption costing.
- 29 The following measures have been calculated to appraise a proposed project.

The internal rate of return is 15%.

The company's cost of capital is 12%.

The payback period is 4 years.

#### Which of the following statements is correct?

- A the payback is less than 5 years so the project should go ahead
- B the IRR is higher than the cost of capital so the project should not go ahead
- C the NPV of this project at the company's cost of capital will be negative
- D the IRR is positive so the project should go ahead

#### 30 Which of the following statements are true?

|                                                                                                 | True |
|-------------------------------------------------------------------------------------------------|------|
| Fixed budgets are the only type of budget used at the planning stage.                           |      |
| Flexed budgets provide meaningful comparison to actual results.                                 |      |
| Budgeting procedures are only useful in maintaining control over the expenditure of a business. |      |

**31** An organisation pays its 12 direct production workers a fixed weekly salary of \$375 each for a 37.5 hour week. Overtime is paid at time and a half. In the last week, 520 hours were worked in total, which included 40 overtime hours worked at the specific request of a customer.

#### How much is charged to direct labour for the week?

- A \$5,550
- B \$4,500
- C \$5,400
- D \$5,100
- **32** A company uses standard costing. There are 6 standard hours required to produce 1 unit and production staff are paid at the standard rate of \$9 per hour. Budgeted production is 700 units per month.

In November 750 units were produced, taking 4,750 hours at a cost of \$41,150.

#### Calculate the labour efficiency and rate variances

|   | Labour efficiency variance | The labour rate variance |
|---|----------------------------|--------------------------|
| A | \$2,250 adverse            | \$1,600 favourable       |
| В | \$2,250 favourable         | \$3,350 favourable       |
| С | \$4,950 favourable         | \$3,350 adverse          |
| D | \$4,950 Adverse            | \$1,600 Adverse          |

**33** A company manufactures a single product. In a computer spreadsheet, the cells B1 to B12 contain the budgeted monthly sales units for the twelve months of next year in sequence, with January sales in cell B1 and finishing with December sales in B12. The company policy is for the closing inventory of finished goods each month to be 5% of the budgeted sales units for the following month.

# Which of the following formulae will generate the budgeted production (in units) for July next year?

- $A = [B7 + (0.05^* B8)]$
- $B = [B7 (0.05^* B8)]$
- C = [(1.05\* B7) (0.05\* B8)]
- D = [(0.95\* B7) + (0.05\* B8)]

#### 34 Which TWO of the following statements about Batch costing are correct?

- A Unit cost per batch is calculated by dividing the total cost by the units in the batch.
- B Batch costing is a form of continuous operation costing.
- C Batch costing is used where the individual units produced in a batch are identical.
- D Batch costing is often used by service providers.

**35** A company uses an overhead absorption rate of \$6.00 per labour hour, based on 48,000 budgeted labour hours for the period. The actual overhead expenditure incurred was \$294,250 and 21,500 units were produced, taking 46,250 hours.

#### Calculate the under or over absorption:

- A Under absorbed by \$6,250
- B Under absorbed by \$30,000
- C Under absorbed by \$16,750
- D Under absorbed by \$36,250

# **SECTION B**

## ALL THREE QUESTIONS ARE COMPULSORY AND MUST BE ATTEMPTED

**1** Yarn Ltd manufactures and sells jumper. The most popular jumper produced is the 'Relaxed' design. The company operates a standard costing system. Fixed overheads are absorbed on a labour hour basis.

The cost card for one 'Relaxed' jumper is as follows:

| Cost card for one 'Relaxed' jumper | Quantity    | Rate             |
|------------------------------------|-------------|------------------|
| Wool A                             | 2 metres    | \$2.00 per metre |
| Wool B                             | 1 metre     | \$0.50 per metre |
| Labour                             | 9.6 minutes | \$7.50 per hour  |
| Variable overheads                 |             | \$5.00 per hour  |
| Fixed overheads                    |             | \$10.50 per hour |

(a) Complete the standard cost card below for the budgeted volume for August – 20,000 'Relaxed' jumpers. (0.5 marks for each correctly completed cell)

| INPUTS             | QUANTITY | \$ |
|--------------------|----------|----|
| Wool A             | metres   |    |
| Wool B             | metres   |    |
| Labour             | hours    |    |
| Variable overheads | hours    |    |
| Fixed overheads    | hours    |    |

The following were the actual results for the production of 'Relaxed' jumpers during this period:

| Actual production                         | 28,000 'Relaxed' jumpers |
|-------------------------------------------|--------------------------|
| Actual quantity of Wool A used            | 58,000 metres            |
| Actual quantity of Wool A bought          | 60,000 metres            |
| Actual cost of Wool A bought              | \$150,000                |
| Actual quantity of Wool B bought and used | 29,500 metres            |
| Actual direct labour hours worked         | 4,800 hours              |
| Actual cost of labour                     | \$36,480                 |
| Actual variable overheads                 | \$17,000                 |
| Actual fixed overheads                    | \$40,000                 |

# (b) Calculate the following variances, stating if the variance is adverse or favourable using A or F:

- (i) The material price variance for Wool A.
- (ii) The material usage variance for Wool B.
- (iii) The labour efficiency variance.
- (iv) The labour rate variance.
- (v) The variable overhead expenditure variance.
- (vi) The variable overhead efficiency variance.
- (vii) The fixed overhead expenditure variance.
- (viii) The fixed overhead volume variance.
- (ix) The fixed overhead capacity variance.
- (x) The fixed overhead efficiency variance.



2 Damage Ltd will be replacing some machines in the next year and needs to decide whether to purchase or lease the machines. The company uses 10% as its cost of capital.

- (a) Calculate the NPV of purchasing the machine based upon the following:
  - Purchase price of \$600,000.
  - Annual running costs of \$45,000 for the next five years, paid annually in arrears.
  - A residual value of \$220,000 at the end of the five years. (2 marks)
- (b) Calculate the NPV of leasing the machine for five years based upon the total annual costs of \$135,000 paid annually in advance. (2 marks)
- (c) Based on the calculations it is best to BUY/LEASE\* the machine because it saves \$\_\_\_\_\_. (2 marks)

\*circle the correct answer

- (d) What does the statement 'the level of sales is the principal budget factor' mean?
  - A The level of sales will determine the level of cash at the end of the period.
  - B The level of sales will determine the level of profit at the end of the period.
  - C The company's activities are limited by the level of sales it can achieve.
  - D Only sales budgets are required for management accounts. (2 marks)

#### (e) Which of the following statements are true about IRRs?

- 1 IRR ignores the time value of money
- 2 if the IRR exceeds the companies cost of capital the NPV at the company's cost of capital should be positive
- 3 it is not possible for one investment to have 2 IRRs
- A 1 only
- B 2 only
- C 2 and 3 only
- D 1, 2 and 3

(2 marks)

(Total: 10 marks)

**3** The financial director has asked you to assess the performance of Rapid Stationery as they are considering whether or not to purchase the company so that they can expand into the world of stationery.

Rapid Stationery is a large supplier of stationery. It supplies both large and small stationery shops and also provides goods to some companies. It has over 30 depots located in various cities all over the UK and has a very good reputation in ensuring that all stationery is delivered with 48 hours of the order being placed. However in recent times the company has been struggling due to the economic climate which has seen revenue fall.

#### **Rapid Stationery**

#### Statement of Profit or Loss for the year ended 31 December 20X2

|                         | 20X2    | 20X1    |
|-------------------------|---------|---------|
|                         | \$000   | \$000   |
| Revenue                 | 8,907   | 9,975   |
| Cost of sales           | (4,174) | (5,248) |
|                         |         |         |
| Gross profit            | 4,733   | 4,727   |
| Less:                   |         |         |
| Distribution costs      | (1,022) | (1,150) |
| Administration expenses | (1,855) | (2,890) |
|                         |         |         |
| Profit from operations  | 1,856   | 687     |
| Finance costs           | (25)    | (36)    |
|                         |         |         |
| Profit before taxation  | 1,831   | 651     |
| Taxation on profit      | (360)   | (250)   |
|                         |         |         |
| Profit for the period   | 1,471   | 401     |

#### **Rapid Stationery**

#### Statement of financial position as at 31 December 20X2

| Total equity and liabilities  | 7,934 | 5,760        |
|-------------------------------|-------|--------------|
|                               | 850   | 3,497        |
| Dalik Uvelulalı               |       |              |
| Pank overdraft                | 500   | 200          |
|                               | 490   | 5/5          |
|                               | 400   | - <b>-</b> - |
| Long term Ioan                | 1,000 | -            |
| Non-current liabilities       | 1 000 |              |
| New autorat liebilities       | 6,084 | 2,263        |
|                               |       |              |
| Retained earnings             | 2,584 | 1,263        |
| Share premium account         | 1,500 | ,<br>_       |
| Called up share capital       | 2,000 | 1,000        |
| Fauity                        |       |              |
| EQUITY AND LIABILITIES        |       |              |
| Total assets                  | 7,934 | 5,760        |
|                               |       |              |
|                               | 3,094 | 1,620        |
| Cash and cash equivalent      | 1,474 |              |
| Trade receivables             | 1,145 | 1,100        |
| Inventories                   | 475   | 520          |
| Current assets                |       |              |
|                               | 4,840 | 4,140        |
| Property, plant and equipment | 4,840 | 4,140        |
| Non-current assets            |       |              |
| ASSETS                        | \$    | \$           |
|                               | 20X2  | 20X1         |

The finance director has provided you with a list of ratios he wishes you to calculate. Calculate the following indicators, showing your answers to 1 decimal place.

| Profitability |                            | 20X2 | 20X1 |
|---------------|----------------------------|------|------|
| (a)           | Gross profit margin        |      |      |
| (b)           | Return on sales            |      |      |
| (c)           | Return on capital employed |      |      |
| Liqui         | dity                       |      |      |
| (d)           | Current ratio              |      |      |
| (e)           | Acid test ratio            |      |      |
| Activ         | /ity                       |      |      |
| (f)           | Receivable days            |      |      |
| (g)           | Payable days               |      |      |
| (h)           | Inventory days             |      |      |
| Risk          |                            |      |      |
| (i)           | Gearing                    |      |      |
| (j)           | Interest cover             |      |      |

(0.5 marks for each correctly completed cell)

(Total: 10 marks)